AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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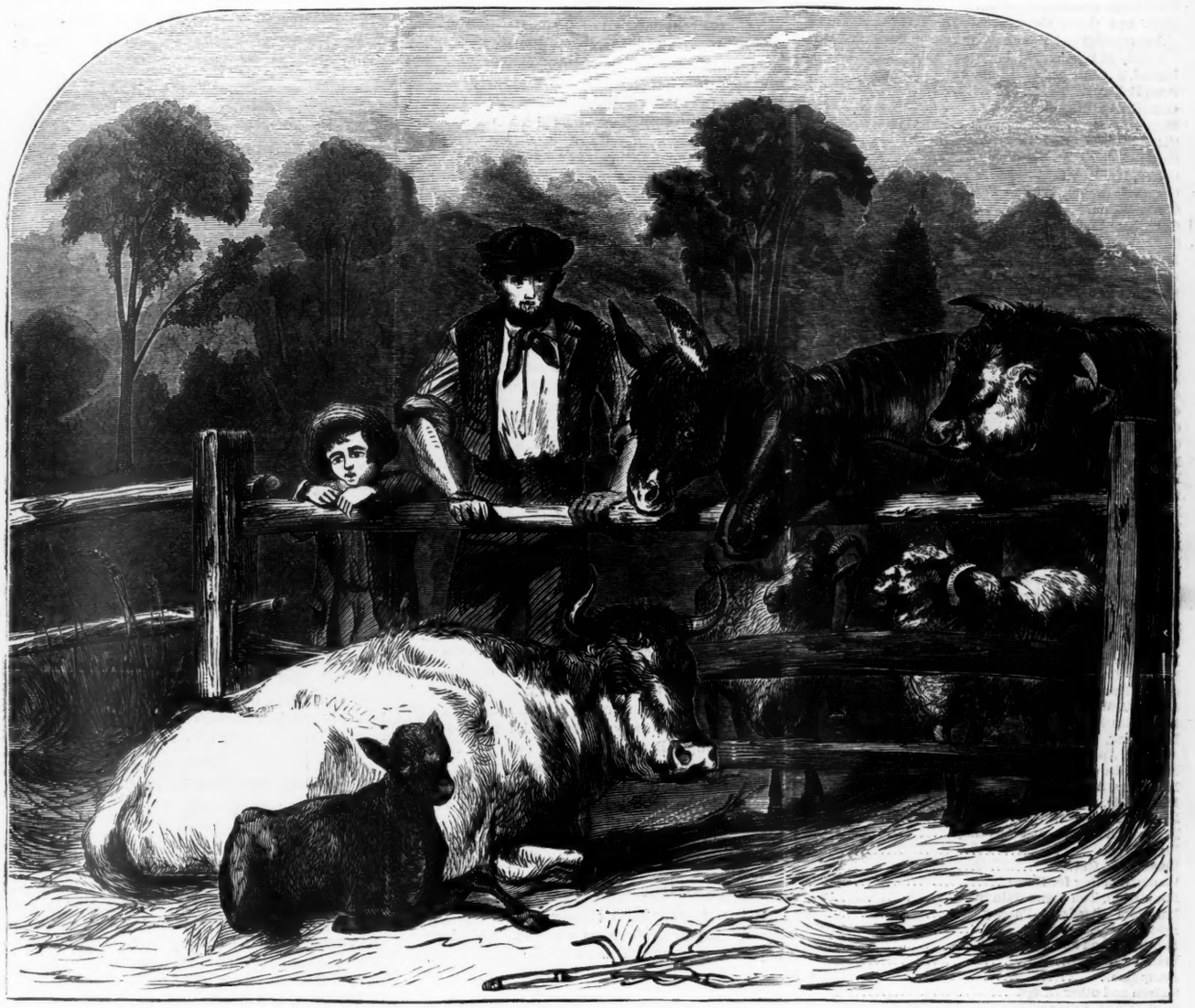

THE NEW ARRIVAL.—A FARM SCENE.—*Sketched and Engraved for the American Agriculturist.*

Having become familiar with almost every phase of rural life by a long residence in the country, and by much travel and observation, we can not avoid a slight suspicion that the artist has, in the above sketch, drawn a little upon his imagination. If called upon as an expert to testify upon this point, we could not pronounce it quite "true to nature." Still we would not much censure him, or join in any laugh at his expense, for the picture is at least founded on fact. Though the new comer does not yet exhibit those fine "points" that judges at the cattle shows discuss with so much gravity, a maturer age may develop them. We can well comprehend the genuine pleasure the farmer himself feels at this substantial addition to his herd. As for the lad, what boy ever failed to be strongly interested in every infantile addition to active life on the farm, be it colt or calf, lambkin or chick, puppy or piggie? We may even conceive Mr. Taurus to have a paternal pride akin to that of the maternal bovine.—No doubt all animals are endowed with some curiosity. We witnessed on a western prairie the effort of a hunter to get within gunshot of an antelope. Secreting himself, he waved his hat on the top of a ramrod. The antelope exhibited unmistakable curiosity, and moved forward to investigate, until he came within reach of the fatal bullet. The horse is alarmed at the first sight of the railway train, and starts off at rapid pace, but soon circles round, and gazes with mingled astonishment and fear at the puffing, snorting iron steed, which so easily and swiftly draws the ponderous train along.—We have failed to observe much curiosity exhibited by the capaciously eared member of the group, but he is certainly entitled to a moiety of this faculty, by reason of his semi-equinine ancestry.—The sheep is always alert on the approach of any strange object, but we have attributed this chiefly to fear.—As for the goat, we doubt if anything could be startling or attractive enough to divert his attention, if engaged in stripping the bark from a fruit or shade tree, or from a crow-bar, as for that matter.—Still our artist may be a closer observer of animal instincts and manifestations than is the writer, and possibly he has witnessed something very like the picture. It is certainly a very pretty conception, and lacks only representatives from the poultry yard and piggery to make the picture complete—at once a pleasing and instructive farm scene, if not indirectly a burlesque upon what often takes place in regal residences when a new comer arrives.

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☞ **See Page 308 for some Special Premiums for July, which are worthy of attention.—A large number of valuable original articles, too many of them to be specified, will be found all through the reading columns, from page 274 to 300, and on pages 305, etc. Not a little useful information wil be obtained by consulting the announcements of an excellent class of Advertisers on the cover pages, and on sundry pages from 301 to 312.**

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1882.

Suggestions for the Season.

The Summer Fallow.

The summer, or bare fallow, was formerly considered the best method of preparing land for the wheat crop. The exposure of the soil to atmospheric and other influences for a whole season has an excellent effect, but it is not necessary. A crop may be grown, and if rightly attended to, the succeeding grain crop may be as good as when preceded by a season of fallow. The good results of a fallow are the most evident upon clay land. The mechanical texture of the soil is improved by the frequent plowing and stirring, thus opening the soil for the free entrance of the air, and the better circulation of the soil-water. These mechanical improvements facilitate the decomposition of some of the constituents of the soil, liberating Potash and other essential elements of plant-food from the locked-up and insoluble chemical compounds of the soil. The Ammonia of the atmosphere, which enters the soil with the rain, is more readily absorbed, and, last but not least, the vegetable matter in the soil is more quickly and thoroughly decomposed, and thereby made available for sustaining the growing plants. All these points are gained by a summer fallow upon a heavy clay soil, but with a light soil there is no such demand for mechanical improvement, and no corresponding advantage gained in a chemical point of view. Nearly all that can be gained by a year of clean culture is obtained by a hoed or root crop. With it the weeds can be killed as effectually as in the fallow; the soil will receive enough culture to make it sufficiently open for the circulation of air. There will be a large gain in the amount of the nitrates and other valuable nitrogen compounds. In the fallow these are formed during the hot months of the year, and, being very soluble, are washed out of the soil by heavy rains, while, if there is a crop, the nitrates, etc., are taken up as food, and stored away, to be used for some succeeding crop. Besides, the root crop will furnish a large amount of excellent food for the farm stock, and finally yield a quantity of valuable manure, to be returned to the soil. With a root crop introduced into the rotation, there is seldom a demand for a summer fallow.

Loading Hay and Grain.

It is not every farm laborer who can properly arrange hay or grain upon a wagon. This is perhaps the most skillful work of the hay or harvest

Fig. 1.—A BADLY MADE LOAD.

field. It must be done with despatch, and in a manner that will economize space and insure safety of carriage. For this purpose a good hay-rack or "rigging" is essential—one with broad wings and of sufficient length, that the load need not be like a stack when complete. A straight and stout reinholder or "ladder" at the front end of the rack is a great aid in making a well-balanced load. Figure 1 shows a too common form of a load of hay; it is not sufficiently spread out at the bottom, and the upper portion is very apt to slide off. The corners should be built first, and bound by the hay afterwards placed in the center of the load. The load may gradually lengthen and widen with each layer put on, the center being kept somewhat hollow until bound at last by a row of forkfuls along the middle. The form of a well built load is shown in figure 2. Such a load does not easily upset or slide from the rack. The well-formed load is the easier to make after a little thought is given to the work.

When forks are left on the top of the load, they should be placed with the handles sloping backwards (figure 2), and not as shown in figure 1;

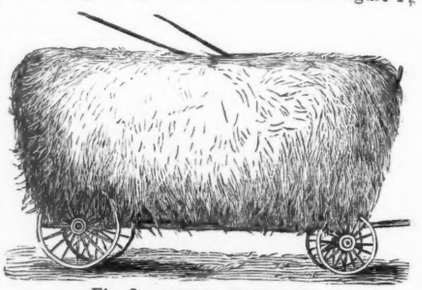


Fig. 2.—A WELL MADE LOAD.

when driving into a barn, they might otherwise catch in the door-way or against a beam, and do serious damage to man or beast.

Take a Holiday.

The Fourth of July is the great summer holiday, and if possible every farmer should so arrange his labor that "all hands" may stop work and enjoy it. It seems to us that a picnic party made up of a few families in the neighborhood is not far from the best way to make the day a pleasant one. Some quiet, shady spot, not too far away, may be selected where the table may be spread with the best products of the farm and garden. The older members of the party will have a good time in social talk, thus getting better acquainted with each other, while the children can run in the woods, gather flowers, fire off their crackers and torpedoes, etc. A day thus spent is far from being a day lost, as, properly used, it breaks the monotony of daily farm labor and serves to sweeten farm life.

The Buckwheat Crop.

Buckwheat is the latest grain crop of the season, and in the latitude of New York is usually sown from the last of June to the middle of July. It is frequently sown as a filling crop, that is, on ground where some other crop has failed. It makes an excellent cleansing crop on foul or rough land, especially upon rich soil where it makes a rank growth and smothers out all other plants. Buckwheat is used to some extent as a green manure to be turned under for wheat or rye. The buckwheat plant is a deep feeder, and has the power of obtaining the food elements when present only in small quantities in the soil. Light sandy soils, deficient in vegetable matter, can be brought up to a good state of cultivation by first growing buckwheat as a green manure crop, followed by clover which is afterwards turned under. Though buckwheat will grow on comparatively poor soil, it makes good use of a light dressing of barn-yard manure or some quick-acting fertilizer. A hundred pounds of Peruvian guano or an equal weight of fish scrap will greatly raise the yield of a buckwheat crop on a poor soil, and prove a profitable investment for outlay.

The harvesting of buckwheat is quite different from that of other grains. The grain "shells" or drops from the straw very readily, and therefore must be gathered with special care. It is best to cut it with a cradle and leave it in the swarth until the next morning, when it should be rolled and set on end while it is moist with the dew. After standing for a few days it is ready to be threshed. The straw has no special value as fodder, but should be used as a litter and absorbent of liquid manure. The grain makes an excellent food for poultry, and when its flour is in the form of buckwheat cakes, it is highly prized, especially in cold weather.

Applying Fresh Manure.

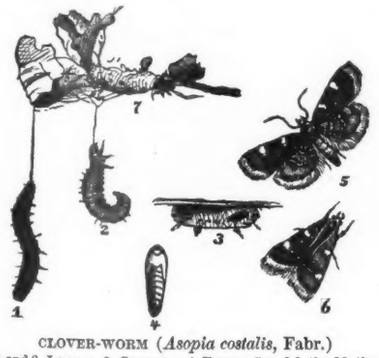
By fresh manure, we mean not only green dung from the stables, but that which has been in the compost heap a month or more, undergoing fermentation. It may be true that in the compost heap, properly handled, there is no loss of fertilizing material. There is frequently loss from surplus manure lying idle in the compost heap, or barn cellar. Of course there is occasion, in the regular routine of farm crops, to apply large quantities of manure at one time. But where the manufacture of manure in the compost heap is made a leading business, there will be a surplus for which no hoed crop calls. Any surplus fertilizers in midsummer or autumn, can be used economically upon the grass crop. They will begin to draw interest as soon as spread, payable at the next harvest. If you have any meadows that cut less than two tons to the acre, top-dress as soon as the hay is gathered. If they yield two tons, top-dress and get three tons or a second cutting. Keep manure on interest, and it will pay better than Government bonds.

Hungarian Grass.

A large crop of good fodder may be secured upon early rye or other stubble by Hungarian Grass. The ground should be prepared as for oats or any other grain, well manured, and the Hungarian sown broad cast and harrowed in slightly. The seed may be sown as late as the middle of July, about one bushel per acre, but the best results are obtained from sowing in early June. If it is desired to have green fodder for a number of weeks in autumn, the Hungarian seed may be sown at intervals of a week or so for upwards of six weeks. The ripe heads of this grass contain a large number of hard and sharp awns or bristles which are irritating to the stomach of animals, especially horses. This trouble can be avoided by cutting the crop soon after the heads mature, and before the awns have grown to full length and become hard. This grass when cured is equal in feeding value to good hay. If there is a demand for late fodder, it would be well to sow some Hungarian during the present month.

The Clover-Worm.

This insect, introduced from Europe, has been occasionally noticed for the last twenty years, and now, in some localities, from New England to Michigan and Illinois, it often occurs in troublesome numbers. It attacks the clover in the mow or stack, webbing the stems together with multitudes of silken threads, among which is such an abundance of black excrement as to unfit the



CLOVER-WORM (*Asopia costalis*, Fabr.)
1 and 2, Larva; 3, Cocoon; 4, Pupa; 5 and 6, the Moth; 7, the Web.

clover for feeding to animals. The white cocoons are present in such numbers, that one, without close examination, would pronounce the hay to be mouldy. The insects are usually found at the bottom of the stack. The engraving shows the insect in its various stages—1 and 2 represent the larva, 3 the cocoon, 4 the pupa, 5 and 6 the moth, and 7 the white web in which the worm for the most part lives. The moth is one of our prettiest species, being of a reddish-brown color, with golden-yellow markings and fringe to its wings. It is suggested as a preventive, that hay containing clover should not be stacked twice in the same place, and that the stack should be placed upon log or other open foundations, that will allow of a thorough ventilation of the hay from below.

Hints to the Harvesters.

The laws of health require careful observation especially at this heated season of the year. By taking some precaution much may be added to the comfort of those who must work in the hot sun. It is very important to avoid drinking much cold water when overheated. It is much wiser to go thirsty than to drink largely of ice water. The fluid greatly increases perspiration, thins the blood, weakens the system and induces continual thirst. Cool water poured on the wrists or held upon the temples reduces the temperature of the body, and is refreshing without being injurious. The head needs special protection. A large straw hat, not black, is a great comfort, and if some green leaves—cabbage are excellent—are put in the crown there is far less danger from the intense heat. A handkerchief fastened to the hat and falling over the shoulders will keep the bright, burning sun's rays from the neck. This latter precaution is not necessary for those who are "toughened" by daily labor out-of-doors, but is a wise precaution to all others.

Care of Live Stock for July.

A sheet of cotton cloth is a great protection to horses, screening them from flies, dust, and heat, while working in the harvest field. Especial care must be taken in keeping the horses clean. An occasional washing with a soft sponge and carbolic soap cleans and cools the skin, aids perspiration, drives away the flies, and is in every way healthful and refreshing. Horses may be given a bath in a stream at evening, provided they are not warm from work, and are not kept in the water more than a few minutes. If the horses are at pasture at night, they need a good, generous feed before being turned out. When kept in the stalls, a mess of green fodder may be given daily.

During the hot weather, cows suffer if kept in a shadeless pasture. A cool, dark and clean stable is much preferred by them. They need an abundance of pure water, a plenty of nutritious food, and should be kept as comfortable as possible.

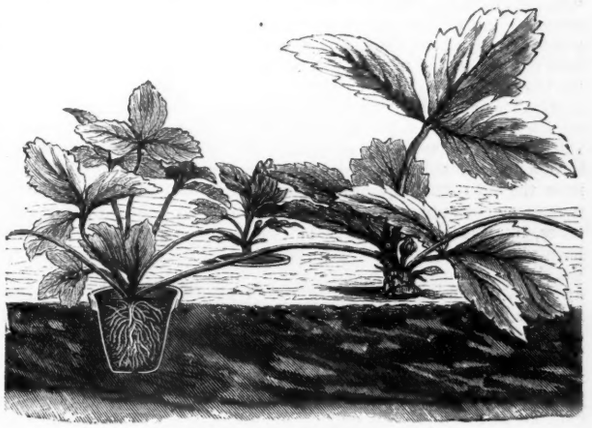
Sheep that are intended for the butcher need to be pushed forward with liberal feeding. A quart of mixed ground feed to each animal daily, with the pasturage, will bring them quickly into good shape for the market. Store sheep need good pasture, with a plenty of shade. If dysentery appears in the flock, remove the sick animals to a cool shed, and give one ounce of castor-oil, with bran or oat-meal mush. Should maggots be found upon the sheep, tar may be applied to the affected parts. Look well to the flock that sheep do not suffer in any way during the hot summer months.

Growing young pigs for the early market are often very profitable. They may be ready in 100 days from birth, if well fed. At first the sow needs to have rich food in abundance, that she may have a full flow of milk. After a few weeks, let the young pigs have meal and wheat middlings.

Now is the time to weed out the poor hens in the poultry yard. Poor layers or bad mothers can be quickly fattened in a coop, when they are ready for market, and will command a good price.

More Strawberries.

Those who wish to increase their Strawberry plantation, should set about it at once. The Strawberry plant is a most generous one; besides giving a crop of fruit, it also affords a crop of plants. Long slender stems push out from the crown of the plant, and a bud forms at the end; roots soon appear to fix this bud to the soil, and it becomes a new plant; another runner pushes from this, and so on. A strong plant will, in a single season, surround itself with a colony of young plants. If these new plants are left where they grew, the oldest of them will bear fruit the next season. Ordinarily, we take these up in autumn or in the following spring, to plant them in a new bed. Being thus disturbed, while these plants may bear a few berries, they require to grow one summer, in order to become strong enough to bear a full crop. It makes but little difference whether we take up these plants and set them in a new bed next autumn or in the spring of 1883; they will need all the season of 1883, in which to get well established and give an abundant yield in 1884. If we can manage to remove these new plants without disturbing their roots and checking their growth, the oldest of them will give as good a crop as if they had been left where they had taken root. This can be done by what is called "Pot-layering." Having practised and given an account of this method some fifteen or more years ago, we were much amused to see, not long since, an European journal announce it as a "grand discovery," and one likely to "revolutionize Strawberry Culture." At present all our dealers in small fruits offer "Pot-layered Plants," of course at a somewhat higher price than for common plants, as they cost much more in labor. The method is very simple, and any one can readily increase his Strawberry beds in this manner. Small pots, not over three inches across, are filled with good soil and plunged in the Strawberry-bed, just under the bud, at the end of a runner, so that its roots, instead of striking in the soil of the bed, will push into the soil in the pot. The pot should be set down in the bed, so that its edge is not above the general surface, else it may get too dry. As the wind may blow the runners about, it is well to lay a small clod on them, to hold them in place, or a small hooked twig may be used. In two or three weeks the new plant will be sufficiently provided with roots to allow the runner that connects it with the parent plant to be severed. It is then to be taken to the new bed, the ball of earth containing the roots turned out and placed in a hole made to receive it. It will go on and grow without any check. To prevent any injury from drouth, it will be well to mulch the plants with a little hay or straw as they are set out. The sooner the new plants can be transferred to their new bed the better; if it can be done in August, a full crop may be expected next year. Suitable pots cost very little at the potteries; those who live at a distance from these, can contrive some substitute. A wooden, tin, or other receptacle, may be contrived to hold the soil. We have great confidence in the ingenuity of our people to supply something in the place of pots; for did not a lady, some years ago, write us that, being unable to get small pots for her tomato plants, she used the shells of ducks' eggs! Prob-



POT-LAYERING STRAWBERRIES.

ably a mere coil of tin, birch-bark, or even pasteboard, if carefully handled, would serve the purpose, which is to keep the roots from disturbance until they can be taken to their new place.

Blackberries and Raspberries.

Every one who has gathered wild Blackberries is aware that the stems grow to the hight of six or eight feet, and gracefully bend over at the top. The lower part of the cane bears little or no fruit, it being nearly all at the top of the bush. The same happens on a smaller scale with the Raspberry when left to itself. While we cultivate the Blackberry for the sake of better fruit than the wild plants usually afford, we should also endeavor to have more of it, and more conveniently placed on the bushes. From questions that are asked, it is evident that all are not aware that the stems of the Blackberry and Raspberry (at least those cultivated for fruit) are only biennial. The plant throws up from the root, often at some distance from the old stems, vigorous shoots, which grow rapidly, and by autumn will become ripe and hard canes, like the old ones. The old canes, which have given a crop of fruit, have completed their work, and, though they may remain alive for awhile, will all be dead by next spring. When the fruit has been gathered, it is best to cut the canes entirely away, to give room to the new ones. These should have more attention than they usually receive; if left to themselves, they will become just like the wild plants, straggling, and with their fruit all at the top. Not only on acount of the greater quantity of fruit, but for the ease in picking it, should the canes be pruned. Blackberry canes should never grow over five feet, and many prefer to keep them at three feet high. Whenever the green shoot has reached the desired hight, remove the top, or growing point, which, being tender, may be pinched off with the thumb and finger. Soon after this is done, branches will start along the stem, and these should also be pinched, the lower ones when eighteen inches long, and the upper when twelve inches. By a little attention, once a week, or oftener, giving the needed pinching, the Blackberry, instead of being a long straggling shrub, catching at the clothing of all who approach it, may be brought into the form of a neat pyramidal bush, which, the next season, will be loaded with fruit from bottom to top. The same treatment may be followed with Raspberries, which are usually kept shorter. One of the greatest pleasures in gardening is found in training and shaping plants, and making them grow as we wish, and in nothing are the effects of this more strikingly shown than in the Blackberry and Raspberry.

The Red-Humped Caterpillar.

Young Apple and Pear trees, and sometimes other fruit trees, are frequently defoliated, or have large branches completely stripped of their leaves in late summer or early autumn, by the Red-humped Caterpillar. The eggs are usually deposited in July, in clusters on the underside of a leaf near the end of a branch, and the young caterpillars eat downward, making clean work of the foliage as they descend. The full-grown caterpillars (fig. 1,) are an inch and a quarter long; the general color yellowish-brown, paler on the sides, and striped length-wise with slender black lines; the head is coral-red, and on the top of the fourth ring is a bunch or hump of the same brilliant color; there are several short black prickles along the top of the back. The caterpillar tapers towards the tail, and this end is always elevated when it is at rest. When full grown, all the caterpillars of the same brood descend to the ground at the same time, seek a hiding place under leaves, or just below the surface of the soil, where they form cocoons, and assume the chrysalis state (fig. 2), in which they remain until the following June, when the perfect insect issues as a small, neat-looking moth, of a general light-brown color. The fore-wings are dark-brown along the inner margin, with a dark-brown spot near the middle. The wings expand from an inch to an inch and three-eighths. If these caterpillars are noticed when first hatched, they will be found all near together, and may be readily destroyed.

Fig. 1.—RED-HUMPED CATERPILLAR (*Notodonta concinna*).

Fig. 2.—PUPA.

Thinning the Fruit.

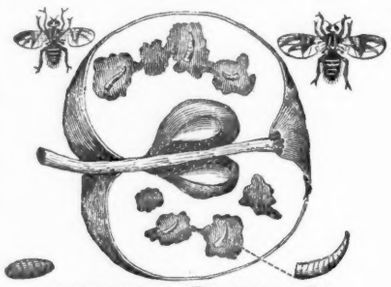
In articles last spring, we gave all that need be said in favor of thinning fruit, and cited some instances to show the profit of the operation. Those who thinned peaches, pears, and apples, soon after the fruit had set, though at the time they thought they were thinning severely, now that it has increased in size, are surprised at the abundance of fruit on their trees. It is rarely that even the experienced remove enough at the first thinning; novices never do, and it is often necessary to go over the trees again when the fruit is half grown or more. At this time we can see, what is not manifest when it is small, any imperfection in the form of the fruit. Pears, especially those which grow in clusters, will become one-sided by the crowding, and this should be kept in mind at the later thinning, and the least perfect removed. In this, as well as all other operations on trees, some thought should be put into the work. Those who are intending to compete for premiums at the autumn shows, should not lose sight of the fact that thinning is a direct and legitimate means of producing "the best six" or "best twelve" specimens of pears or other fruit. Those who have an eye to the prizes offered for grapes should begin preparing for them now, and not let three clusters grow where a single one would be better.

Sticks and Strings.

"Its all sticks and strings" said Hood's funny Mrs. Gardiner, in speaking of the Dahlia, yet sticks and strings properly employed are most useful in the garden. If people will grow Dahlias, they can not hope for success without them. It is very disheartening to grow a Dahlia up to a point where its swelling buds give a promise of bloom and have a sudden storm break off its largest branches. Long green sticks with white heads are offered for sale as Dahlia stakes. The idea evidently is to put one of these to each Dahlia and tie the plant to it. Aside from the fact that these sticks are especially conspicuous, they give the support just where it is not needed. Every one who has grown Dahlias knows that the main stalk takes care of itself, and that it is the breaking down of the side branches by the winds or from being heavy with rain that disfigures the plant. If, instead of putting one green stick with a white top to a Dahlia, we place to each main branch a short stake to which it can be tied in such a manner as to relieve the weight, then a good work will be done. The stake need not be green, or any other color, if properly used it need not be visible at all and a stake from a tree or shrub with its natural bark will answer every purpose. At this time there will be other plants besides Dahlias that will need stakes, especially Gladioluses and Tuberoses, both of which become top-heavy as flowering time approaches, and the timely aid of a stake is essential to success. Ordinary brush will answer quite as well as painted stakes, for if a stake shows, it is too large. The most unpretending stakes, if they have the one requisite—strength—are the best. As to strings, Bass-bark is the regular gardener's tying material, that from a Russian mat being preferred, though the bark from our own Bass-wood is quite as good. But every one cannot easily get Bass-bark, and it is possible to keep a garden in order without it. The excellence of Bass-bark consists in its being a soft and yielding material; it is strong enough for most uses, yet it will yield and break if the growth of the plant requires it. If we could have but one string in the garden, it would be cotton twine. Bass-bark is better for some uses, but on the whole, if confined to one, cotton twine, of the best sort is preferable. This is a twine without any starch or size. That commonly used in the grocers' and other shops is poor stuff made stiff with size. On the sea-board we get at the ship-chandlers' stores what is known as "sail twine," very soft, and wonderfully strong. No doubt such twine can be found elsewhere. As next to this cotton twine we have found a jute twine, not so strong as the cotton, but very soft and cheap. In the absence of other ties, we have used worn cotton cloth, such as a sheet or part of a worn out shirt; this is easily torn into strips of convenient width, and while the material is strong enough for most purposes, it will break away if the stem increases in growth.

The Apple-Maggot.

Besides the well-known Apple-worm, or Codling-moth, there is in some localities, especially in the older States, the Apple-maggot. It differs from the Codling-moth in many respects; the parent insect is not a moth, but one of the two-winged flies. It is not, like the other, an imported insect, but a native which has long inhabited our wild apples and the haws, or fruit of our thorns, and is found in cultivated fruit, here and there, all over the country. The engraving shows an infested apple, and the insect in its different stages; the perfect fly, with its transparent wings, being shown above, while the maggot and pupa are given below. The excavations in the apple show that the larvæ enter at no particular place, and do not, as in the case of the Codling-moth, seek the core. The destruction of the infested fruit by feeding it to pigs, or making it into cider for vinegar, is one of the obvious means of preventing its increase.



APPLE-MAGGOT (*Trypeta pomonella*).
Perfect Insect; Larva and its burrows; Pupa.

A Hint in Time about Ivy.

Those who have given any attention to decorating their rooms with living plants, are aware that there is none so useful for this purpose as the European Ivy (*Hedera*). Instead of waiting until falling leaves remind us of house-plants, and then grubbing up and potting an Ivy, it is better to prepare the Ivies now. This plant is always pleasing, whether used around a window-frame, over a door-way, run over the frames of pictures, or, as we have seen it, carried completely around the cornice of a room. It will endure much neglect, and will amply repay all the care that may be given it in washing the dust from the leaves, and good culture generally. But we do not now speak of its culture, but would only say a word about starting it. It is most easily propagated. Procure branches two or three feet long or more; take any wide-mouthed bottle or jar; place some earth in it, perhaps a quarter full, add water to nearly fill the vessel, and, removing the lowest leaves, put the ends of the Ivy branches in this thin mud. Set the whole in a shady place out-doors, or on the piazza, and add water to supply that which evaporates. In a few weeks the stems will have abundant roots, when they may be potted, and by autumn be much better for use in the house than

any plants dug up from the ground. No plant yields more readily to training; it may be continued with a single stem many feet in length, provided that all side-shoots that start are nipped off, or if several stems are wished for, pinch off the growing end, and some will soon start.

A Larger Patch of Beans.

The season of the maturing of the Bean crop is short, and there is plenty of time to enlarge the acreage of this staple crop. White Beans from Germany are sold in the New York market for $3.10 to $3.50 per bushel. White American Beans are scarce at $5.00. This is occasioned by the drouth of last summer, and is a very unusual state of the market. It is estimated by the dealers in this article that a half million bushels have been imported. Beans are among the cheapest and most nutritious of our table supplies, and in some parts of the country are served regularly every Saturday evening and Sunday morning, with the brown, or Indian loaf. Emigrants from New England generally carry these dishes with them wherever they settle. Mediums and Marrowfats are good, but they soon lose ground where the Kidneys and the Limas are once fairly tried. The Large White Kidney is the favorite bush Bean for the main crop in the garden, and the Improved Lima is hard to beat for pole Beans. Plant a few more beans.

Preparing for Winter Flowers.

Those who have small green-houses or cultivated flowers in their windows, have set out their geraniums, and other quick-growing plants for the summer. Many make the mistake of taking up these plants in autumn, after they have grown all the season in the open ground, and potting them to be replaced in the window or green-house. The result will always be "long-legged," misshapen plants, which, instead of blooming satisfactorily during the winter, will take a long time to recover, and never be worth as much as new plants from cuttings. Such plants may be prepared for, this month and next, and with very little trouble. Of course those who have green-houses with appliances for propagating need no directions, but many lovers of flowers have to content themselves with such plants as may be grown in the windows of the living rooms. These become attached to their plants, and when one is set out in the bed they expect it back again. When such a plant goes out, consider it thrown away, for it may as well be, and set about replacing it. The following method will give a few plants with little trouble. Take a common store box, such as a starch or soap-box, knock off both cover and bottom, and if need be strengthen it with extra nails. Tack over this a piece of cotton cloth and the frame will be ready. Select a place where the soil is light and sandy, or if the ground is all stiff, spade in some sand or coal-dust to make it light and open, and place the frame over it. If cuttings of geraniums, cupheas, verbenas, or other such plants are placed in the soil and covered with the frame they will soon take root and form nice specimens, which, when they begin to grow, may be potted and be ready for winter. If the frame is where it will be shaded in the middle of the day, all the better; if not, it may be tilted a little when the sun is very hot, to give ventilation and prevent overheating.

Dried and "Evaporated" Fruit.

Within a few years there have appeared in the market very superior dried apples, peaches, etc., which are known in the trade as "Evaporated Fruits," to distinguish them from the ordinary dried fruits. In the common method of drying fruit, spreading it in the sun, or in stormy weather placing it near the kitchen stove, the long exposure to light gives it a dark color; besides, it is liable to be soiled by insects and by dust. The attractive appearance of the "evaporated" articles allows them to command a much better price than the others, and many who dry fruits are inquiring about the matter. The evaporating process owes its superiority chiefly to the fact that the drying is done rapidly, and in the dark. There are half a dozen or more patented evaporators, but this is a feature common to all. They differ in their mechanical arrangements for handling the fruit, and these are important. The apparatus consists of a tower, with a stove or furnace below for heating the air, platforms or stages for holding the trays of fruit, which are so arranged upon endless chains or otherwise, that they may be raised or lowered. Being in a current of warm, dry air, the moisture is removed from the fruit with great rapidity, the drying, which in the sun often takes days, being completed in a few hours. The majority of the evaporators are in capacity far beyond the needs of an ordinary orchard, while the cost, though it varies, is greater than one would be likely to incur for an apparatus for his own use. As one evaporator will prepare the fruit of many orchards, several fruit-growing neighbors might unite in the purchase, and run it in co-operation, or better still, for one with capital to establish an evaporator, if the others will agree to supply him with fruit. While we have said that the various evaporators agree in essential principles, they vary much in details, and the best advice we can give those who inquire about them, with a view to working up the coming crop, is to lose no time, but send at once to the makers for their various circulars, and carefully compare their capacities, first cost, and mechanical details. That there is any important difference in the quality of the product, we do not believe. The very white "evaporated" apples are made so by bleaching them, sulphur being burned at the proper stage of the process. For family use, there are several dryers, the same in principle as the evaporators, but being upon a much smaller scale, all the moving of the trays is done by hand. These, or some of them, at least, if carefully managed, will turn out as fine a product as the large apparatus. In October of last year we showed how an excellent family dryer can be made with hot-bed sashes. The fruit dried in this will not be so light-colored as that dried in the dark, but vastly superior to the ordinary fruit. The same article gives the reasons why we can not comply with requests to give directions to make a home-made evaporator.

Why so few Chrysanthemums?

The Chrysanthemum is a plant that has every element of popularity, and we have often wondered at the comparative neglect of it. There are a few old sorts, a lilac, a yellow and a white, that are to be found in the old country gardens, that have undergone neighborly division for many years. Some of the new kinds are so beautiful, and they all come into bloom in the garden at a time when there is very little else, and are so bright in the dull days of autumn, that we should be glad to see more of them. Chrysanthemums, as a general thing, with us, are treated like other hardy plants; put out and left to take care of themselves, until the clumps get too large, when they are divided and reset. They will abundantly repay a little care. Instead of allowing the roots to throw up a small thicket of stems, remove all but four or six, and as these get large, give them stakes to prevent the autumn storms from breaking them down when loaded with flowers. The chrysanthemums are admirable for window blooming. If for flowering in-doors, the plants, as soon as buds are formed, should be potted; they will soon recover, if placed in the shade for a few days; the pots may then be plunged in the soil, or placed in a frame and surrounded by coal-ashes. When cool weather comes they are to be taken up, cleaned, and taken in-doors, giving them abundant air on mild days. Whether in pots or in the open ground they are apt to be infested by a plant-louse, which should be treated with tobacco water; a woolly caterpillar is sometimes destructive; this is not numerous and may be hand-picked. The plant is one that yields readily to training, and by pinching in its early growth may be formed into neat compact bushes. After the potted chrysanthemums are through flowering, the stems are to be cut down, and the pots containing the roots placed in the cellar until spring. To the old large-flowered and the small-flowered, or Pompone varieties, there have been added of late years the exceedingly beautiful Japanese Chrysanthemums, some of which are cultivated by florists for cut flowers.

About Watering Plants.

Unless one has an abundant supply of water, so that its use, when once begun, can be continued, it is better, as a general thing, to not water at all. In the drouth which we so generally have this month, a mere sprinkling of the leaves is worse than no watering at all. Still, we all may have in the vegetable as well as in the flower garden certain plants that we would like to favor. In such cases, instead of watering the plant, the water should be applied to the soil; draw the earth away from the plants, forming a sort of basin around them; then pour on water gradually, and let it soak in around the roots. Afterwards return the removed dry earth to its place, and this will act as a mulch, to keep the moisture at the roots.

A Well Kept Lawn.

We have already suggested that the use of the lawn mower should not be governed by any rule, such as "mow once a week," but by the condition of the grass. In mid-summer more injury may result from mowing too frequently than from cutting too seldom. We would now call attention to the weeds in the lawn. Weeds here, as elsewhere, are annual and perennial, and they may be undesirable grasses or other kinds of plants. Take the perennial weeds, for example; these come from seeds brought on in manure or taken there otherwise. These are cut back each time the mower is used, and are hardly, if at all, noticed in the spring months. In mid-summer, when we mow less frequently, to give the grass a chance, these weeds which we have been unintentionally pruning in the early months, are quite ready to assert themselves. Plantains, Docks, Thistles, and others not before noticed, will in the short rest we give to the grass, make themselves conspicuous. The best treatment for such perennial weeds, even on a large lawn, is hand weeding. A long knife or a chisel-shaped "spud" thrust well down to cut the root, will allow the plant to be pulled up without disturbing the grass. In England they have a contrivance for killing such plants, which places a few drops of oil of vitriol (sulphuric acid) on the centre of each. We have not had occasion to try this, but those who make the experiment should keep in mind the destructive effect of the acid upon the clothing, and the fact that it should not come in contact with the fingers, etc. Annual weeds as a general thing are of but little consequence after the first year, as the frequent mowing subdues them. One of the worst of these is a grass, the "Crab-grass" (*Panicum sanguinale*). It appears late and its prostrate stems lie close to the ground, taking root at every joint. This is also known as "Finger grass," and bears its flowers and seeds in a panicle that looks like the frame of an umbrella. Whenever the flowers of this appear the lawn should be mowed to prevent the ripening of seeds, and it will be safe to rake off the mowings, for fear that the immature seed may be ripened after the grass is cut.

Plant-Lice.

It would seem that almost every plant had its particular louse. While these are among the most abundant of insects, they are also those most easily kept in control. While some insects, like the Rose-bug, resist all applications, the tender-skinned plant-lice are easily subdued by tobacco in any form, whether dusted upon them, applied in the liquid form, or as smoke. What are known as "tobacco stems" may be had of the cigar-makers, often for the carrying off, or at any rate for a very small price. These may be burned for plants in greenhouses, but for those out of doors the application must be in a liquid form. Fill a barrel with the stems, crowding them down firmly, and then add water; hot water, if in a hurry, but

cold will answer. The tobacco "tea" thus made will not injure the most delicate plant, but will be very destructive to the lice, upon whatever plant they may be. The liquid may be applied by any of the many garden pumps, or even with a common watering pot, as the case may require. It sometimes happens that the lice collect in great numbers near the ends of the branches of trees; in such cases it will be well to bend the branches down, and immerse the ends in the tobacco-water.

Take Care of the Tomato Vines.

If there is any one subject that would seem to be exhausted, it is the Tomato Trellises. During the past 20 years we have described probably twenty different trellises, and the story of the whole is: keep your Tomato vines from resting upon the ground. One of the simplest methods is, to drive in stakes at an angle of 45°, and nail, or lash to these, light poles of any kind; in the absence of poles use wire. The whole object is to so place the vines that they can be reached on all sides, not only that we may free them from "the worm," but also save the fruit from decay. If the fruit is left in direct contact with the soil, decay sets in soon after ripening begins; supporting the clusters of fruit, where all can be seen, will allow of the removal of the poorly shapen, and when they are too much crowded, they may be thinned. The French advise training the Tomato to a single stake. We have tried this and do not like it. The clusters of fruit, as they approach maturity, become very heavy, and just as they are the most promising will break away from the main stem. Such clusters can not be readily supported when the plants are trained to a single stake, but on a trellis of almost any kind they may be kept up. The Tomato may be cultivated in two methods: as a field crop in which it is allowed to have its own way; or in the garden, where those who appreciate excellence in vegetables will find the Tomato to amply repay whatever care may be given to it. Were it only for the facilities it affords for catching "The Worm," we should always provide some kind of a trellis for the Tomato. Besides this, the handsome appearance of the ripening fruit is greatly in its favor.

Think of This a Moment.

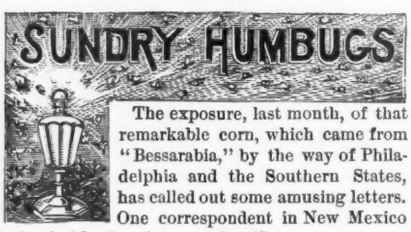
A grand "Mutual Aid Association"—with a membership of over a million, embracing residents of every part of this country and many in other lands—with no admission fee or after assessments—with no self-seeking among its members, and no rivalry except in good works—with a manifest desire and effort on the part of each to aid every other member in any way practicable—such an association is surely most desirable, and no one connected with it could fail to be much benefited.

Well, an Association somewhat like the above has been in existence for a quarter of a century and more. It is made up of Readers of the *American Agriculturist*. Only one defect has been found in its working, viz., the failure of some of the members to appreciate their opportunities for helping each other.—To illustrate: If a reader knows of some method of doing a particular work, or of some simple labor-saving or labor-helping device, which is not in common use by all his acquaintances, the strong probability, indeed the certainty is, that there are tens of thousands, if not many hundreds of thousands, elsewhere who are unacquainted with it. Now if every such reader will send a description of the affair to the Secretaries of the Association (the Editors of this Journal), they will put it in proper form for the type, introduce engravings if these will help to a better understanding of the matter, and then multiply copies and send them to every member of the association through the length and breadth of our own land, and to a multitude of foreign members. Those seeing it will talk of it to their neighbors, and they to others, and thus the smallest or largest helpful item will reach and benefit many millions.

To drop the figure, we wish to earnestly invite every reader of the *American Agriculturist* to think over the matter, and see if he does not know of something in his own experience or observation, which may not be known to everybody else, but which if known might be helpful and therefore useful to others. In thousands of instances, our readers have written that some trifling hint has been worth a great deal to them. We have scarcely ever gone over the smallest farm, or barn, or live stock yard, or dwelling, or garden, or orchard, without seeing and learning something we had not known, or seen elsewhere—something worth talking about to others. But we can not visit one place in a thousand that we would like to; and we feel certain that among our intelligent, inventive, go-ahead readers, there is scarcely one who has not himself in use, or seen among his neighbors, some good method or device, or mode of doing this, that, or the other thing, different from ten thousand others.

Again, therefore, we ask as a matter of interest, not merely to the Editors, but to all readers, that every one send us some item. Describe something, in few or many plain words, if only on a postal card. When needed, give a few outline marks, figures, dimensions, etc., so that we can get at the gist of it. Never mind the grammar, the correct spelling, or fine writing; the Editors will put the matter in shape and clothe it in proper words. Some of the best things in our recent numbers have come from men who had no literary education, but they had practical ideas and skill, and in the rudest language and sketches they have furnished most valuable hints and suggestions that are useful to a very large number.

One thing more: Do this to-day and to-morrow—not put it off until next week or month, or to the leisure of winter. Send us along something *now*, and that will lead to other communications in the future. If in any case time and expense are required, we are always ready to pay for it, if the material is useful and is used, and the contributor desires remuneration.



The exposure, last month, of that remarkable corn, which came from "Bessarabia," by the way of Philadelphia and the Southern States, has called out some amusing letters. One correspondent in New Mexico finds that he has been paying 15 cents per ounce for corn that he can buy at home for 2¼ cents per pound. A friend in Benzie Co., Mich., is very mirthful over the whole matter. As the Boyd's Batteries and the wonderful spectacles are sent out by those who deal in Bessarabia Corn, he proposes to combine the virtues of all in the corn, and issue a Johnny-cake that will produce the most wonderful effects, medicinally, and so act upon the eyes that people will see a great many things that they would prefer not to see, and will advertise it all in the "New York Agriculturist,"—if he can find it.

That "Common Sense Incubator"

is still inquired about. The circular professes to give directions for making an incubator, and gives detailed measurements in inches and parts of inches, with many rather obscure directions. It makes a great point of the use of saw-dust, but says nothing about the kind of saw-dust. If any one doubts that the use of pine saw-dust will kill the eggs, let them try it. That this circular of Bain is a fraud, it furnishes its own evidence. After showing, with apparent detail, how to build an "incubator," it says: "To those who have never used an Incubator, we would say that you can get full and explicit directions for managing it, which will tell you at what temperature to keep the eggs....when and how to turn them....also full and complete directions for making a Brooder or Artificial Mother....without which you can not raise them at all," and a great deal more. This wonderful book can be had for $2, and the advertising of this book, and of eggs of various breeds, seems to be the sole object of this "Incubator" circular.—Bain, you should be ashamed of it.

Gambling in Grain.

A concern in Chicago sends out a very attractive circular to farmers, which proposes to those who receive it to enter into speculative operations with the firm. Gambling of all kinds, whether in grain, in stocks, or at cards, is something that farmers should let alone. They may be sure that propositions like those made in this circular can bring them no profit. They have in Texas this saying: "Never play at a game that you do not understand,"—a saying that farmers may bear in mind when asked to take a part in doubtful schemes.

Cutlery, Silverware, Watches, Etc.

Those who receive circulars offering wonderful inducements to engage in the sale of these, should recollect that no special favors are shown in business. An article, whatever it may be, sells at its real value; and if any concern or company professes to offer standard articles at much less than the market price, they may be sure that the things offered are not what they are represented to be.

Poultry-Dust.

Dust is a good thing for poultry, and aids the fowls in getting rid of vermin. But in parts of Ohio there seems to be rather too much dust. Will our friends who have been taken in by the loud professions of certain poultry papers, of which, so far as we can learn, only one number has been published, give us their experience? As with those who, under cover of telling how to construct an incubator, advertise their books, so certain poultry papers in Ohio advertise certain secret processes. Let us have light on this question.

Medical Matters.

In former numbers we have noticed the fact that our budget of Humbug letters of inquiry frequently run in a particular line. This month the great majority of our letters of inquiry refer to medicines and doctors. No other form of humbuggery is so successful as this. People in general know so little of their own bodies and the diseases incident to them, that those quacks who most strongly assert their nostrums are sure of a hearing. Among our letters are several asking about a "Dispensary" in Buffalo, and inquiring if they can successfully treat patients "by correspondence." To such letters we can only give the general reply, that we do not know of a physician of any standing who would think of treating a patient without *seeing* him or her. We look upon all who profess to "prescribe by mail" as persons to be avoided, whatever their pretentions. A large share of the letters that come to us refer to matters which we do not care to discuss in full. One from a friend in Minnesota, inclosing a circular of

Old Dr. Culverwell's Radical Regenerator,

to which we can only answer, "DON'T." Don't fool your money away upon the various nostrums offered by this circular. In all troubles upon which this quackish circular treats, the imagination plays a large part, and magnifies them. To all like our Minnesota friend, we would say, go to the nearest reputable physican, and make him your confidant and adviser, in preference to any one advertising in a distant city, of whom you know nothing. It is safe to consider all such self-announced "Physicians" as quacks. Their references to cured persons are easily obtained. If you make inquiry of any of those referred to, ten to one they are myths, if not co-partners of the quack himself.

The "Pillow Inhaler."

Here is something which an inquiring friend at Mt. Vernon, O., asks what we know about it. Our knowledge is confined to that given in the circular which he sends. This claims to be a "rational way to medicate the night air, and thereby heal diseased lungs, and throat and air passages;" but, as, after a great deal of talk, it fails to give any clue to the stuff used, or the "eminent doctor who wrote the formula of our prescription," we give our usual advice, to let every and all secret preparations alone, even if they are in a pillow.

Dr. Churchill's Restorative Remedies.

To those inquiring about them, we say, let them alone. The circular gives the melancholy picture of the fellow "before taking," and the cheerful picture of a fellow "after taking," and a vast amount of reading calculated to make a nervous person miserable. These "Churchill remedies" belong to the same class with the Inman humbug. They propose, very frankly, to tell how they are prepared, and while, unlike Inman's prescriptions, they call for well-known articles, the directions for their preparation are simply absurd. Indeed, the apparently learned instructions given with the prescriptions are laughable to those having any knowledge of such matters. But the Churchill fellows, knowing that no mortal man can fix the stuff, come to the rescue, and offer to do it all for *a price*, and this is the whole end and aim of their circular. Churchill's stuff has become a nuisance.

"World-wide Blessing to Womankind,"

is the advertised name of a certain contrivance, and the advertisers better look out. Their circular, though somewhat ambiguous, indicates what they mean—which is mischief. This notice is not intended to be at all ambiguous, when it advises them to stop that "syringe" business.

A Pernicious Proposal.

We have a most rascally circular, claiming to be issued by the "——— Corresponding Club." The blank may be filled by the name of a Massachusetts town, but we are not doing that kind of advertising. The correspondence is to be "with a view to Mutual Improvement, Amusement, or Matrimony." The price is 25 cents, and the circular says that "in no other way can you get them (correspondents) so easily and with so little expense." The details, giving the rules of this club, are sufficient to make parents shudder at the thought that such a thing may come into the hands of their children. Worse yet, the circular offers to send for 25 cents a book, "How to Write a Letter; a Complete Guide in Business, Friendship, or Courtship." This "——— Corresponding Club" may suddenly find itself in trouble some July morning.

The Electric Light.

Electricity is a wonderful agent. The men of science who have studied it most thoroughly make the fewest claims regarding it. But electricity is a grand thing with which to impose upon the people. We have had all sorts of useless toys called "Batteries," to be worn next to some part of the body. These claim to possess curative properties, and no doubt some honest people think that they have. Those who have examined them know that they can have no more efficacy than a leather medal of the same size. There are so-called "Electric," "Magnetic," "Magneto-Electric," and "Galvanic" affairs in great variety, to be worn under the sole of the foot, or against a part of the body. Electricity has been quite thoroughly applied as a medical humbug. When electricity began to be used for illumination, we expected that the swindlers would find some way to turn this to their benefit. The bogus "Electric Lamp" has turned up, but in a miserable shape. In some of the manufacturing towns of New Jersey, the agent of the "Edison, McCandless Electric Light Company" has appeared. He is described as "well dressed,"—whoever heard of a swindler who was not? The "well dressed agent" has a "powder," a remarkable powder, which has only to be put into the kerosene of an ordinary lamp, when forthwith said powder will convert the common lamp into an "Electric Light." Besides transforming the lamps in this manner, there were offers of gifts of furniture, which should have put people on their guard. It did not, and sundry persons in Newark and elsewhere have paid out their dollars for that "powder," which is worth nothing, and for promises of furniture, which, if possible, are worth still less. It was bad enough for these fellows to sell, some years ago, pinches of common salt, at a high price, to put into the lamps, to prevent the breaking of chimneys, but that a powder could be sold to convert a kerosene into an electric lamp, seems incredible.

Obtaining Money under False Pretenses.

Some of the journals in the western cities and towns have been badly bitten in taking advertisements from every one who could raise enough money to get a regular circular printed; we are glad to see that they are getting more cautious, and of late, instead of inquiries *after* they have published the advertisements, we have inquiries beforehand. The latest case of this kind is that

OF J. CUDNEY & CO.,

who claim to be "Advertising Agents" in Broadway, N. Y. J. C. & Co. send to a Wisconsin journal a remarkable advertisement of J. A. Vail, of Philadelphia. The biggest kind of the most bejewelled, and the solidest sort of hunting-cased, and everything else that can make a watch valuable, all for $19.63 (though the figure in one place is $19.65—but what are 2 cents in buying "A Solid Gold Watch, the Opportunity of a Life Time?") As we wished to do our Wisconsin friend a good turn, our steps first went toward the number on Broadway, given by Cudney & Co. We went where they were, but they were not there. Next our representative in Philadelphia sought the man with the watches—Mr. Vail. To say that

OUR EFFORTS WERE UN-A-VAIL-ING—

makes a miserable pun, but tells the truth—no Vail, no Cudney, no nothing. We advise our Wisconsin friend to get cash in hand before he prints the advertisement. Better still, we would suggest that such advertisements as this of Vail should not be published at any price. The great army of swindlers would be greatly diminished if all papers at a distance, especially those at the West, take example from our friend in Wisconsin.

Pensions.—The Fitzgeralds and The Fitzgeralds.

Our call in the May *Agriculturist* for information regarding the Fitzgeralds, has elicited replies from the Fitzgeralds, and from many parties who have dealt with the Fitzgeralds. Altogether, the information received to date is both spicy and of a character to interest, if not amuse, somebody. Meanwhile we keep the matter open for another month, that testimony may be received from still others, as regards their Pension transactions with the Fitzgeralds. Please forward your communications immediately, condensing the facts, and making them brief for publication.

Farming at the "Front."

Never before have there been so many people of all classes taking a strong, direct, personal interest in the agricultural situation and prospects. Business men, bankers, capitalists, stock brokers, merchants, mechanics, manufacturers, operatives, and day laborers even, are watching the daily bulletins and reports of the weather, with especial reference to how it is affecting the growing wheat, corn, and oats, and the further planting of corn. Never before have they seen so clearly that farming is the real basis of all other business, and that upon it rests the prosperity of the country. They now comprehend the fact that it was the good crops of 1878, 1879 and 1880, from the export of which we received so many hundreds of millions of dollars from other lands, which changed the financial depression of 1873, and the years following, into a prosperous activity extending through all branches of trade and manufacture. Every extra bushel of wheat or corn, or pound of meat, cheese and butter that went to market helped turn the scale. The hundreds of millions of bushels of grain that came from the interior to the seaboard, gave profitable employment to the railroads. These bought and used more cars, more iron, more steel, and the makers of these, from head director to the lowest laborer, received more wages and more constant employment, and they purchased more freely those articles that go to supply the necessities and comforts of every day life. This stimulated and increased the mercantile trade, and made heavier demands upon all kinds of manufactured commodities. The farmers who received the proceeds were able to reduce debts upon their farms; to buy more and better implements; to pay up their store debts, and to buy more freely from the merchants. The merchants and shop keepers were in turn able to pay up their debts to wholesale houses, brokers in manufactures, and importers, and to buy larger stocks of goods for cash or on short credits. The carrying of these goods increased the transportation business, and stimulated the building of five to ten thousand miles of new railroads per year.

This brief glance at some leading points shows the great and far-reaching influence of prosperity to farmers. On the other hand, the unfavorable winter and spring and the summer drouths of 1881 cut down the surplus wheat and corn and meat and dairy products and cotton, may score millions in value. This of course diminished exports, and has started gold abroad; it has decreased the ability of farmers, and all classes of workers, to buy goods and manufactures. The decline in the demand for iron and steel, and the fall in prices, prevent the payment of the wages asked for, and there is now prevailing one of the greatest "strikes" ever known in this country, of laborers who demand higher pay to meet the increased cost of living, due in part to the advance in breadstuffs, consequent upon the lessened crops of last year. Is it any wonder that this state of things has opened the eyes and enlightened the understanding of that half of the people who are not engaged in agriculture, and who have hitherto been inclined to look upon farming as of inferior importance, and suited for clod-hoppers? Farming has come to the front, and it is going to stay there.

A Bushel, More or Less—Its Immense Influence on the Country.

There are now growing in this country, about Forty Million Acres of Wheat. A bushel, more or less, at harvest will make a difference of Eighty Million Bushels in the aggregate crop. At $1,25 per bushel, the value would be $100,000,000. That sum diffused through the country, three-quarters to the producing farmers, and one quarter to the railways, canals, lake and river shipping, and dealers—and from all these classes, passing from hand to hand, to merchants for goods, to manufacturers for their products—from these to the workmen, and from these again to dealers in provisions, goods, etc., would be a wonderful stimulant to the entire business of the whole Country—an influence sufficient to turn the scale from prosperity to depression, or the reverse. But the above is for a single product. There are over Eighty Million Acres in Corn and Oats. A difference of a bushel more or less per acre in the yield of these, at an average of only 40 cents per bushel, counts up Sixty-four Million Dollars more. Then, of say Sixteen Million Acres in Cotton, the difference of only 50 lbs. per acre, more or less, at 10 cents per lb., counts up Eighty Million Dollars more. Passing over the Dairy products, an immense interest, the Potato, Barley, Rye and Tobacco products, we have in the previously named crops, a difference of Two Hundred and Sixty-four Million Dollars, from so small a change in the yield, as a single bushel of grain per acre. —And a single week of favorable or unfavorable weather throughout the country, between this time and the in-gathering of the crops, will easily make all the difference we have noted, and thus affect the interests of the whole Nation.

In this connection we may add, that, if the Government Weather Bureau can in the slightest degree help the farming interests by early reports widely diffused, of the state of the weather, and the probabilities for a day or two in advance, and thus aid the cultivators of the soil in their plans and operations, Congress should not haggle a day or an hour over a few hundred thousand dollars appropriation to the Bureau to make it more efficient, while they vote away, without hesitation, tens of millions to clearing out diminutive mud creeks, and the erection of costly public structures where their chief use is to put money into the pockets of "constituents."

Fig. 1.—FRONT ELEVATION.

Country House, Costing $1,750 to $2.000.

(Cost, as here Described, $1,969.)

CLASS II.—2nd PRIZE.—BY C. R. CRABB, COXSACKIE, N. Y.

The Judges, in making the award to this plan, say: "A very good plan in many of its features, notably in arranging a large kitchen, which is the great workshop of the house, and having it roomy, central, and with convenient appointments. Two or three changes, however, would be decided improvements we think, as for example: (1.) A rear entrance to the Kitchen could be easily made with small expense, and it would both save steps, and the carrying of various articles in and out through the 'stoop' door, which is exposed to view from the street. (2.) Re-arrange Pantry and adjacent closets, to have a direct passage from kitchen to fuel-room, instead of going through two 'entry' doors. There is here the same objection as noted in the plan given in May, viz., that the bath-room cannot be used by occupants of the second story, except by passing through the Kitchen or Sitting Room, and then through the bed-room, when it may be occupied by persons sleeping there or by an invalid. A bath-room should always be placed where it can be freely entered by all the occupants of a house, without disturbing any one else; and also so as to be warmed in cold weather.—We now give

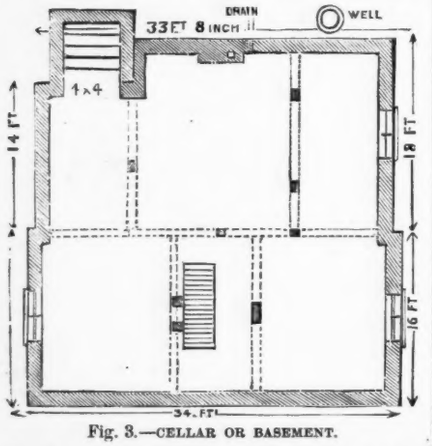


Fig. 3.—CELLAR OR BASEMENT.

the descriptive text, or "specifications," sent by Mr. Crabb, with such condensations and suggestions as seem desirable. (These specifications not only describe the materials and kind of work, but also serve as a basis for giving out the work by contract. In a written contract, some additional items may well be stated, as the kind of blinds, quality of lead to be used in the Tank, etc., etc. The book, "House Plans for Everybody" supplies

Fig. 4.—FIRST STORY.

many suggestions which will be very useful to any one about to construct a house, large or small):

Mason's Specifications.—Excavate for Cellar under entire house, and for footing stones under Veranda, Woodhouse, and Privy; also for drain and cesspool. (If water can be found near, dig a well deep enough for a constant supply of water, about 6 feet from foundation, in rear of Kitchen; stone it up 2½ feet in diameter in the clear.—**Foundation** walls to be 18 inches thick, and of good building stone, started in trenches 4 to 6 inches, according to the soil, below the cellar bottom, on base stones, if obtainable, wide enough to reach across the wall. Lay to line both sides, 3 feet high in cement mortar, and the remaining 3 feet 8 inches, in lime mortar. Lay up cellar-way with stone in cement mortar. Steps to be of cut stone, 12 inches wide, 3 inches thick, and 5 feet long. Use brick for risers. [Where stone is not accessible and cheaper than brick, the latter may be used for cellar walls, etc.—ED.] Build six *piers* of brick, 12 by 12 inches, where they are shown (fig. 3), each capped with a stone the size of pier. Build a double pier for Sitting Room chimney.—Start the Kitchen chimney from the cellar bottom, to have one flue from cellar, also a flue from Kitchen fire-place, built for a No. 9 Range. Use a 4 by 8-inch stone lintel, and slate hearth bedded and set in cement. Put a 6-inch tube in ventilating flue 4 inches above second story ceiling timbers, and all necessary tubes in draft flue.—Build Parlor chimney from cellar bottom with single flue. Make fire-place for a common iron grate, for wood or coal.—Start Sitting Room chimney on piers, carrying up single flue. Put in all necessary tubes and covers. Top out in cement mortar, and as shown on Elevations. All piers and chimneys to be started on large stone bedded in cement. Lath walls and ceilings, and also a space overhead in cellar, large enough to cover a swing-shelf, with hemlock lath, breaking joints every sixth. Put on a heavy scratch coat with mortar, well haired, and at least a week old. Hard finish ceilings on scratch coat (broom scratch), in best manner with Plaster Paris, white sand and lime. Finish walls for paper with a brown coat of mortar and lime, skim troweled down hard.—Set a plain marbelized slate mantel in Parlor, and do necessary mason work in setting kitchen range. Lay the cellar drain with brick tile, and sink drain with 3-inch glazed tile, making joints perfect with cement, and scrape it smooth on inside. Tile to be laid on a 6-inch hemlock board, brought to a true and even grade. If the ground slopes well away from the house, make a shallow cesspool with stone, laid dry, extending and putting it not less than 200 feet from the well. If nearly level, build it of brick, well cemented inside. Cover with large flag-stone, leaving a man-hole 22 inches in diameter. Make the cesspool 6 feet by 6 feet, and 8 feet deep. Set large flat stones below posts under Veranda, Woodhouse, and Privy, each to have a place cut on upper face, to set an iron rod.—Leave house broom-clean, removing mason's materials and rubbish, and leaving mason work complete and finished.

Carpenter's Specifications.—First Story to be 8 feet 6 inches in the clear, and Second Story, 8 feet in clear. Posts 16 feet from top of sill to top of plate ceilings of upper room, to finish 10 inches on rafter.—Sills for house, 6 by 8 inches; for Wood-house, 6 by 6 inches; for Veranda, 4 by 6 inches.—Studding next to openings, 3 by 4 inches; intermediates, 2 by 4 inches. Corner posts, 4 by 6 inches. Plates, doubled, 2 by 4 inches. Rafters, 2 by 6 inches, 2 feet to center. Collar beams, 2 by 6 inches.—First Story floor timber, 3 by 8 inches, 20 inches to center. Second Story floor timber, 2 by 8 inches, set 16 inches to centers. Rafters and floor timbers to be Spruce, the balance of the frame to be sound hemlock.—Frame the sills together with mortise and tenon, using 6 by 8-inch cross-sills under partitions, as shown, set on edge. Frame in lower floor timbers flush with top of sill. Every other floor beam in Second Story, under tank, to be 6 by 8 inches; cap of partition, under tank to be extra heavy, studded up with 2¼ by 4 inches, 12 inches to centers. Studding in outside wall to be 3 by 4 inches, set 16 inches to center, where weight of tank comes. Plane and cut the ends of rafters

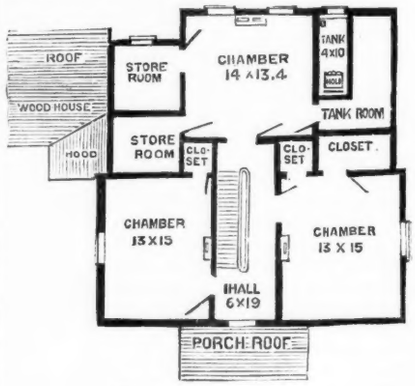


Fig. 5.—SECOND STORY.

to pattern, as in figure 7, allowing them to project 20 inches over plate.—Sheath the frame with hemlock boards, well fastened on with tenpenny nails,

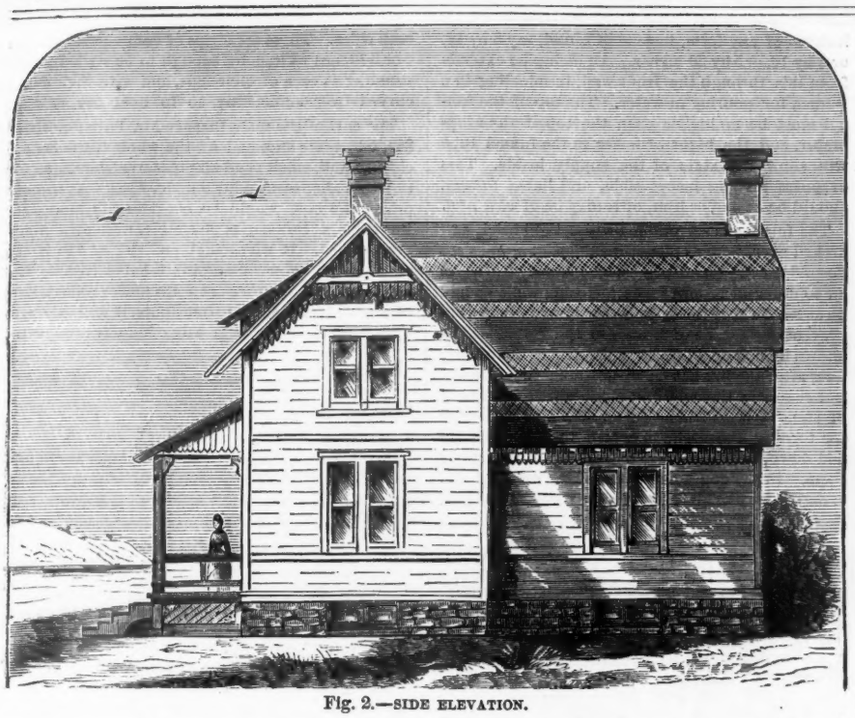


Fig. 2.—SIDE ELEVATION.

put on diagonally in gable ends. Roof, board with 1½-inch matched pine plank, laid smooth side down, as far out as the roof projects, covering balance with 6-inch hemlock boards, or shingling strips; put in fourteen inch tin valleys, painted both sides, and shingle in the tin gutters, as in figure 8, and paint both sides of the tin. Straps across the gutters should be about 2 feet apart. Put in a line of gutters, graded to and a little above the tank. Use a 2-inch leader, put through roof, and within 5 inches of bottom of tank. Place the other gutter as near the edge of the roof as practicable. Put on leaders of proper size, to conduct water to tank and ground.—All shingles to be best sawed pine, 18 inches long, laid 5½ inches to the weather. Water-table to be 6 inches wide, 1¼-inch rabbeted. Corner boards to be 1½ inch thick, and show 4 inches wide. All belts to be 1½ inch thick, rabbeted for clap-boards.—Make window frames as shown, with plain drip caps, 1½-inch casings, 1½-inch jambs, and 2-inch sub-sills. Cut pockets, and put in axle pullies for weights. The sash in mullion windows of First Story, for glass, 18 by 30 inches, 2-light. In Second Story, 18 by 28 inches, sash, 1¼-inch. The single frame windows of First Story to have sash 13 by 30 inches, 4-light; and for Second Story, 13 by 28 inches, 4-light. All to be glazed with best quality French sheet-glass. Make other windows as shown on plans and elevation. Prime paint the frames and corner boards before setting. Cover all sheathing with best resin-sized building paper, giving good lap, and have it extend well under all frames, casings, etc. Cover with ½-inch bevel edge pine siding, 5½ inches wide, to lap not less than ¾ inch, and nailed with sixpenny nails. All outside pine to be free from splits, sap, and loose knots.—Put Wood-house sills 6 inches from the graded ground, on inch iron rods, to have thread and nut on upper end to adjust sills; lower end to rest on stone set below frost. Roof and frame same as main. Side of Wood-house may be covered with 6-inch "Novelty Siding," instead of the bevel edge pine siding. Build Privy the same. Build hood over kitchen door, as shown (fig. 5). Make platform stoop, set on rods, with outside steps on two sides; plank for steps, 1½ inch; for risers, ⅞ inch thick. Set front porch on iron rods. Floor to be narrow 1½-inch matched pine, driven up in paint. Steps, 1½ inch thick, and risers, ⅞ inch. Put up rail and seats where shown. Rafters, 2 by 5 inches, spruce, planed and cut to pattern. Roof boarded with matched pine plank, smooth side down. In shingling the roof, cut the two middle courses to pattern. Put on brackets, and do all ornamental work as shown.—Cover cellar-way with a pair of flap-doors, made of 1½-inch matched pine plank, with proper hinges, etc.—All the windows to have outside blinds, except those in cellar. Bridge all floor timbers, one row through each span, with 1½ by 2-inch spruce strips. Use 1½inch matched pine-plank, 6 inches wide, for flooring, selecting the best for the Kitchen, Pantry, and Bath Room. Set partition of 2 by 4 studding, 16 inches to centers, and doubled at openings. Make angles solid with blocks, spiked in.—Build Stairs as shown, with 1½-inch plank treads, and ½-inch risers, blocked and glued. Put up a 4-inch black walnut rail, 2-inch black walnut turned balusters, and 8-inch turned black walnut newel. House to be cased on first or scratch coat. All inside pine to be clear. Door and window casings 5 inches wide, ½-inch thick, with a cove on each edge, and three scratch beads run through the center, as in figure 9; these to be cut against corner blocks, 5½ by 5½ by 1½ inches, fig. 10. Use base blocks for door, 5½ inches wide, 8½ inches high, 1½ inch thick. Base-boards of first floor, 8 inches wide; second floor, 6 inches. Bevel off top edge, and run on bead, as in figure 11. Front doors to be each 2 inches thick, 2 feet 3 inches wide, and 7 feet 6 inches high; to have ground glass in upper panel. Furnish with flush bolts, lock, and Kahala bronze trimmings; also a good lever-bell, to cost $2.50. All doors on first floor to be four-panel, molded both sides, and 1½ inch thick; white porcelain trimmings; mortise locks, and hard-wood thresholds. Second floor to have four-panel "O G" door, 1½-inch thick, mortise locks, brown trimmings, pine thresholds. Put plain wood mantel in each chamber, and a neat hard-wood mantel in Sitting Room. Fit up closets with shelves, and a set of hooks, 9 inches apart, on two sides. Build a Tank in attic, of good 2-inch pine plank, 4 feet wide, 10 feet long, inside measure, and as high as the roof will permit, to be properly timbered and braced. Put ¾-inch iron-rod across the top at center; cover top with ⅞-inch matched boards, leaving a man-hole with cover. Make a ventilating tube of pine boards 6 by 6 inches, running from top of tank to top side of collar beams. Connect it with ventilating flue of chimney with a piece of 5-inch stove-pipe. Have the leader from gutter made loose joints, so that it can be taken off, and the tube plugged when no water is wanted in the tank. Make scuttle and cover in ceiling of chamber over Kitchen.—Wainscoat Kitchen, Entry and Bath Room, 3 feet high, with narrow matched and beaded pine, ⅞ inch thick; cap with nosing, and cover.—Ceil up sink, with door under, and put up splash-board 16 inches high.—Fit up Pantry with table, as shown, with drawers under; a set of closets with doors along one side, with closets for flour barrels under, and a set of open shelves. Build a closet in entry of matched pine boards, 3 by 5 feet. Put up row of hooks. Fit and properly hang batten door to the same.—Build a wood sink where shown, 20 by 30 inches wide, by 5 inches deep. Ceil up under, making a closet with door. Put up board at right hand of sink for water-pail. Case up bath-tub with pine, putting up proper cant-boards, etc. Build steps from stoop down in wood-house. Make coal-bin, where shown, of hemlock boards, to hold 6 tons of coal. Make window and shute of proper hight to shovel in coal from wagon. The back door of wood-house to be of 1½-inch matched pine, and 3 feet wide, properly hung, with a bolt to fasten from inside.—Fit up Privy with 1½-inch counter top, to have hinged covers.—Build reservoir in top for dry earth, part of which may extend in wood-house. Place window so that earth can be shovelled in from a wagon.—Make a tight box, with hard-wood runners, and stout ring and staple in end, to receive droppings, so that this can be drawn away and emptied when necessary. Put up a swing-shelf in cellar. Do all necessary carpenter work to carry out and complete the design of the entire building.

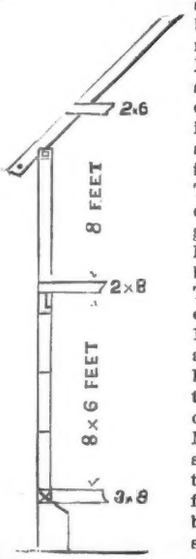


Fig. 6.—THE FRAMING.

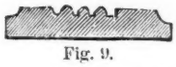


Fig. 9.

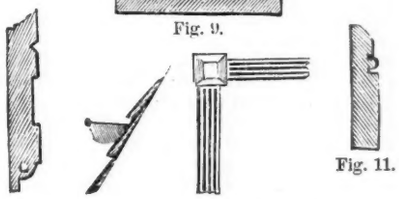


Fig. 7. Fig. 8. Fig. 10. Fig. 11.

Plumber's Specifications.—Put up in Kitchen a thirty-gallon galvanized iron boiler, set high enough to clear the sink. Furnish iron sink, 20 by 30 inches. Furnish a 6-foot bath-tub, of 12-ounce sheet-copper, well tinned. Line tank in attic with lead. Put a 3-inch lead waste-pipe in tank, and connect it with the leader at corner of house. Connect tank with boiler through ¾-inch "B" lead-pipe, to supply sink and bath-tub with hot and cold water, through ½-inch "B" lead-pipe. Put in 1¼-inch waste-pipe for sink, trapped, and 1½-inch waste-pipe for bath-tub. The latter may connect with sink waste-pipe above the trap. Properly connect waste-pipes with the drain.—Connect boiler with water-back of Range. Put a 1½-inch lead waste-pipe in sink in Entry, to go through wall and discharge on the ground; no service-pipe required for this sink. Put up in the Kitchen, at right hand of sink, a No. 2 "Union Pump," or its equivalent; connect it with the well by a 1¼-inch galvanized iron pipe. [An important matter is not stated. The pump to be "suction" and "force" with strong pipe up to tank, and "tell-tale pipe" down to sink—to fill tank from the well (or from cistern) when roof supply fails.—EDS.]

Painter's Specifications.—Prime outside of house and the blinds with white lead, oil, and yellow ochre. Cover this with one coat best white lead and oil. Paint in colors to suit the owner. Paint all inside work two coats, using best materials, and in tints to suit those concerned.

Shellac knots, and putty all nail-holes and splits. Oil and shellac the newel, post, rail, and balusters.

Estimate of Work, Materials, Etc.

Digging Cellar and Drain	$30.00
Well, complete	30.00
82 Yards Stone Work, @ $2.25	117.00
10,000 Brick for Chimneys and Piers, @ $10.00, laid.	100.00
Drain, $32.00; Stone Cesspool, $14.00	46.00
576 Yards Lath and Plaster, @ 25 cents	144.00
Stone Steps	3.00
Slate Mantel and Grate	28.00
	$498.00

Hemlock Timber.

Sills, 6 by 8 in. 238 feet in length	952 ft.
2 Sills, Tank, 6 by 8 in. by 18 ft. long	144 ft.
25 Collar Beams, 2 by 6 in. by 14 ft. long	350 ft.
7 Posts, 4 by 6 in. by 16 ft. long	224 ft.
6 Wood-house Sills, 4 by 6 in. by 18 ft lg.	136 ft.
80 Studs, 2 by 4 in. by 16 ft. long	887 ft.
20 Studs, 3 by 4 in. by 16 ft. long	320 ft.
18 Rafters on Kitch'n, 2 by 6 in. by 12 ft.	216 ft.
	3,229 ft., @ $17.00, 54.89
150 Wall Strips, 13 ft. long, @ 14 cents	21.00
50 Joists, 2½ by 4 in., 13 ft. long, @ 18 cents	9.00
150 Roof Boards, 6 in., 13 ft lg, (hem'k culls), @ 8 cts.	12.00
225 Sheathing, 10 inches wide, 13 ft. long, at 15 cents	33.75

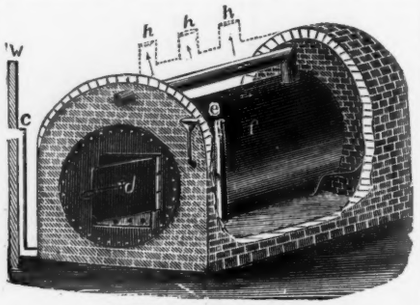
Spruce Timber.

34 Floor Timbers, 3 by 8 in. by 16 ft. lg.	1,088 ft.
40 Floor Timbers, 2 by 8 in. by 16 ft. lg.	840 ft.
40 Rafters, 2 by 6 in. by 14 ft. long	560 ft.
	2,488 ft., @ $22.00, 54.74
18,000 Best Pine Shingles, @ $4.75	85.50
160 lbs. Sheathing Paper, @ 5 cents	8.00
600 ft. 1¼-inch Pine, for Frames and Casings, @ 4 cts.	24.00
400 ft. 1¼-inch Inside Frames and Casings, @ 4 cts.	16.00
2,500 ft. Clap-boards, @ $24.00 per M	60.00
86 "Novelty Siding," 6 inches wide, @ 16 cents	12.76
320 Matched Pine Planks, 1¼ by 6½ in., @ 20 cts. each.	64.00
Stairs, Rail, and Newel, complete	38.00
1,000 ft. ⅞-inch Pine, for Casings, @ 4½ cents	45.00
480 ft. Narrow Beaded Ceiling, ½-inch, @ 4 cents	17.20
500 ft. 10-inch Matched Pine, @ 3 cents	15.00
450 ft. 2-inch Plank, @ 4 cents	18.00
50 ft. Cherry Thresholds, @ 5 cents	2.50
40 ft. Ash for Mantels, @ 5 cents	2.00
300 ft. Shelving, @ 3 cents	9.00
10 Pairs Sashes, 2-Light, 18 by 30 by 1½ in., @ $1.60	16 00
4 Pairs Sashes, 2-Light, 18 by 28 by 1½ in., @ $1.50	6.00
2 Pairs Sashes, 2-Light, 18 by 24 by 1½ in., @ $1.40	2.80
3 Pairs Sashes, 4-Light, 13 by 30 by 1½ in., @ $2.00	6.00
2 Pairs Sashes, 4-Light, 13 by 28 by 1½ in., @ $1.80	3.60
6 Pairs Cellar Sashes, @ 50 cents	3.00
Blinds for all, except Cellar Windows	26.00
1 Pair Front Doors, 4 ft. 6 in. by 7 ft. 6 in. by 2 in.	8.00
9 Doors, 2 ft. 8 in. by 6 ft. 10 in. by 1¼ in., at $2.25	20.25
1 Door, 2 ft. 6 in. by 6 ft. 10 in. by 1¼ in.	2.00
3 Doors, 2 ft. 6 in. by 6. ft. 6 in., at $1.75	5.25
8 Closet Doors, @ $1.25	10.00
Pantry Doors	6.40
1 Door, 2 ft. 10 in. by 6 ft. 10 in.	2.40
All Hardware	110.00
Plumbing, $146.00; Painting, $85.00.	231.00
Carpenter Labor, not included above	350.00
Range, $35.00; Cartage, $25.00	60.00
Total Cost	$1,969.04

Wood-Burning Heating Furnace.

In the Prize House Plan given in the *American Agriculturist* of May last, pages 194–5, from Mrs. W. H. Burr, of Redding Ridge, Conn, she partially described what she called the "Farmer's Furnace," in which 4-feet lengths of wood, of large size and knotty, are burned, and which has given excellent results. This has called forth a great number of letters of inquiry, and in response to our request Mr. Burr kindly constructed and brought us a model, on the scale of 1 inch to a foot, from which engravings and descriptions are given herewith: The Heater, *f*, is made of Boiler Iron, one-quarter inch thick, and firmly riveted at all joinings. It is 6 feet long, and 3 feet in diameter, with door, *d*, 18 inches square. The front end, or head of the heater, is of cast iron, 1½ inch thick, and the door is also cast iron. Below the door is a sliding plate, with three-quarter-inch holes, matching corresponding holes in the end plate of the furnace, so that by moving this slide when the door is closed, the air admitted can be reduced to any amount desired, and the fire be thus under complete control.—The smoke chimney, 9 inches in diameter, rises from the interior end with an elbow, and is brought out in front, where an ordinary stove-pipe is attached, and extended to the chimney. As this pipe is inaccessible for repairs, save by removing the brick-work, it is made of strong one-eighth-inch iron plate, well riveted. The front end of the furnace is supported by the brick wall, and the rear end by a flat bar of iron, 4 inches wide, and half an inch thick, bent to fit the bottom of the furnace, its ends being supported by the brick-work. An upright strong iron tube, *e*, 4 inches in diameter, is attached to the side of the furnace. It is closed at the bottom, and open at the top. This is for holding water, to be evaporated into the warm air to moisten it. (A good supply of moisture is important in *all* heating furnaces, as we have frequently explained, and we suggest that this *evaporator* have an open surface of at least 100 square inches—of any form, instead of round, say 8 by 12, or 6 by 16, or 5 by 20 inches.) An inch pipe extends from this through the front wall, terminating in a funnel, for pouring in water. The top of the funnel must be no higher than the top of the evaporator, and the hight of water in the funnel tube will show the state of the supply inside. This evaporator being inaccessible, and liable to rust, should be of boiler iron, or it may be of cast iron.

The furnace is surrounded with a tight brick wall arched over, with as many openings, *h*, *h*, *h*, as are desired for the tin air-pipes which convey the warm air to different rooms. The inclosing walls should be at least a foot thick, or better 15 or 18 inches, to prevent any escape of heat into the cellar. They absorb a good deal of heat and give it out slowly long after the fire has gone down in the furnace. For economy the end and side walls may be built of stone if this is plentiful; bricks will be needed for turning the arch, in which they may be set end down, and thickened by additional layers over them. In the engraving a part of the wall and arch is omitted to exhibit the furnace in the interior.



A VIEW OF THE FURNACE.

We suggest that in building the wall, a door, say 2 feet wide and 3 feet high, be left in the front side with an arch or heavy iron bar, or strong flat stones, over it. This door can be filled in with brick or stone, which can be taken out without disturbing the rest of the wall, should there ever be occasion to enter the interior, as there will quite likely to be, in after years. A solid foundation must be provided to support the weight, and the interior and exterior flooring is covered with a heavy coat of cement or concrete, with smooth surface. Cold air is admitted through a broad box pipe, of which the edge is shown at *C*, which opens outside the house through the cellar wall, *W*, the outer opening being protected by a wire screen nailed over it. This cold air box is made of inch boards, its interior say 15 to 20 inches by 5 or 6 inches. It enters about the middle of the side wall and extends under the center of the furnace so that the cool air will rise uniformly around it. A sliding cut-off board should be inserted in this cold air box for conveniently shutting off too much cold air when a driving wind strikes directly upon that side of the house. The enclosing wall and arch should be large enough to leave an open space of 12 to 18 inches at the sides and at the rear end of the Heater and above the smoke pipe. In the model before us, the interior is about 7 feet long, 6 feet wide, 6½ feet high. The tin heat-carrying pipes should be of ample size, equivalent to 10 or 12 inches diameter for the first story rooms, and 7 to 9 inches for the upper rooms, to which the draft is stronger. If all were of the same size the upper rooms would take most of the heat. This, however, can also be regulated, and should be, by having dampers in the pipes near the furnace, so as to shut off the heat or lessen it for any rooms, as desired, though the registers in the rooms, if closing tightly, will regulate the entrance of warm air. The tin pipes can be of any form desired, round, square, or otherwise. They are best put in when constructing the house, as they can then be carried up through the partition walls. But great care is always needed to keep them well protected from contact with wood. When warm-air or smoke pipes are carried up through plastered walls, fasten them firmly at a distance of 3 inches from the studding on each side; and instead of wood lath, put iron lath on both sides. These are strips of common sheet iron, 2 or 3 inches wide, long enough to be nailed to the studding at each of their ends, and with their edges curved over sufficiently so to hold the mortar.

The cost of the main furnace Mr. Burr reports as $50, two years ago, and of the whole (furnace, enclosing wall, smoke and air pipes, registers, etc., for the whole house) as a little under $150.—At present prices, the cost would be considerably increased. But such a furnace is desirable, even at a much greater cost. It saves fuel, and risk of fire if the air-pipes be properly put in; it saves trouble, the litter and dust of stoves and fire places; and a flow of warmed fresh air from out-doors, if properly supplied with moisture, is greatly conducive to health.

Seeding on Sod.

We have been experimenting, from force of circumstances, in seeding on sod the present spring, and infer from present developments, May 20th, the date of this writing, that it is entirely practicable to get a fair catch of clover and grass seed on neglected pastures and meadows without plowing. The seed sown was red and white clover, herd's-grass, and red-top, mixed. The land experimented with was an old meadow, naturally moist, springy, with water upon the surface, in spots, during winter and spring, neglected for a dozen years or more, grass cut and carted off, and nothing returned—brakes and weeds more plenty than grass on all parts of it. The sowing commenced early in April and continued until the middle of May. On small patches a mixture of wood and coal ashes was spread, and the ground raked over. Here the catch is good, and the young clover and grass is promising. On other patches loam was spread and the ground raked over, and the seeds have started well. There were bare patches under the walls, where leaves had rotted for years, and in this leaf-mold the catch was all that could be desired. In another patch, several loads of spent tan-bark that had been rotting for ten years was spread, and the ground raked over. The seed did not come so quickly in this, but there is quite enough, if it lives, to make a good sod. On the larger part of the meadow there was no top-dressing, and the seed had no protection but the very thin growth of grass and weeds, just starting. The catch is not so good here of course as in the dressed patches, but is better than could have been expected. Of course the better way of seeding is to plow, manure, harrow, and bush, but all this takes time and costs a good deal of money. If we can get a good catch of clover upon neglected meadows and pastures, we can put them upon a course of improvement at small expense. Wherever the clover plant will grow, it will enrich the soil, and prepare the way for grains and grasses. It would have been better to sow the grass and clover seed in March upon the snow; but as it is, the experiment is quite satisfactory.

Ten Years' Gain in Population.—The relative gain in population by the different States, from 1870 to 1880, is shown by the following figures of percentage, calculated from the Census Reports. The "Westward march of Empire" is well seen in comparing the northern New England States with those west of the Missouri River. Vermont gained little more than half of one per cent during the ten years; that is to say, for each 190 inhabitants in 1870, there were 191 in 1880; while in Nebraska, for every 190 inhabitants in 1870, there were 699 in 1880—a gain of 268 per cent. The total population of the several States in 1870 and 1880, is given in the *American Agriculturist* for February last.—The following are the percentages of gain in the different States between 1870 and 1880:

Increase Per Cent.

Colorado	387	S. Carolina	41	Missouri	26
Nebraska	268	W. Virginia	40	N. Jersey	25
Kansas	173	Michigan	38	Kentucky	25
Texas	94	Mississippi	37	Wisconsin	25
Oregon	92	Iowa	36	Tennessee	23
Minnesota	78	Georgia	30	Virginia	23
Arkansas	66	N. Carolina	30	Massachu's	22
California	54	Louisiana	29	Pennsylv'a.	22
Nevada	47	Alabama	27	Illinois	21
Florida	48	R. Island	27	*In the whole country*	

Maryland	20
Ohio	20
Indiana	18
Delaware	17
Connectic't	16
New York	16
N. Hamp'e	9
Maine	4
Vermont	¼
	30

Prairie Chickens.

BY JOHN MORTIMER MURPHY.

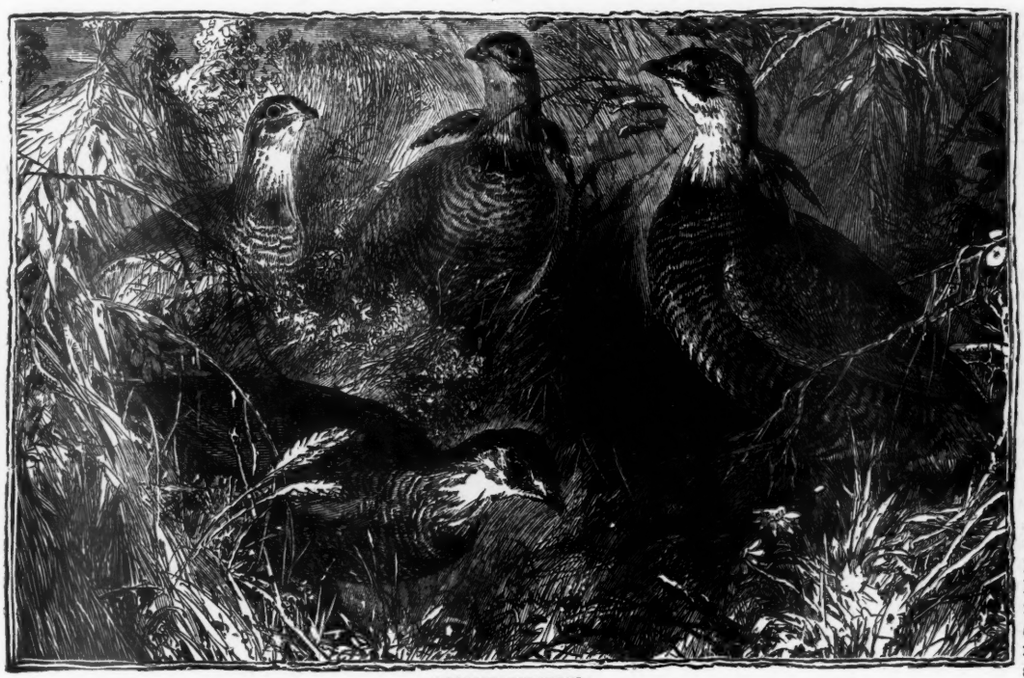
By the middle of this month (July), thousands of the readers of the *American Agriculturist* residing in the Western States, will be getting their fowling pieces ready for Prairie Chicken Shooting, the law being up in most of the States and Territories in August. The Prairie Chicken is regarded by many as a bird of superior flavor and delicacy. Its general color is blackish-brown, varied with tawny; the throat is buff, and the vent and under tail-coverts are white. It carries the well-known distensible sacs on each side of the neck, and the little wings or tufts which have given it the specific name it bears.

When the males are soliciting the company of the opposite sex in the spring, they inflate these sacs to the size of a small orange, expand the winglets, spread and erect the tail, and commence booming, or tooting, long before daybreak, and continue it until sunset in places where they are numerous; but where they are hunted much, they are seldom heard after sunrise. They are always pugnacious, but unusually so at this period; hence, if two meet, they indulge in fierce battles, which terminate only by the flight or death of one of them. When they are "calling," the air reservoirs, which are alternately filled and emptied, produce sounds not unlike the roll of a muffled drum. This roll can be heard a mile away in calm weather; but if the skin is punctured it ceases to be resonant. As soon as the love season is over, the hens leave the males and build their nests of grass and leaves in the open prairie or under the shelter of a bush. The number of eggs laid by each varies from ten to sixteen; these are a light-brownish color, irregularly spotted with black. If the first eggs are destroyed, another set is laid, but if not, only one brood is raised in a season.

When the young appear, the mother displays the greatest solicitude for their welfare, and keeps steadily calling to them whenever they manifest a disposition to stray from her side. If a man approaches them she ruffles up her feathers and assumes a combative attitude, but she seldom flies at him, preferring to lead him away from them by various artifices. She warns the brood of danger by a single loud cluck, and the moment they hear it they disperse in every direction, and squat so close to the ground, in the tall grass or grain, that it is almost impossible to detect them without the aid of a dog. They remain in cover until the mother announces that the danger is over and calls them to her side.

They are so fully developed by the fifteenth of August, although only hatched in June, that they afford excellent sport, as they are strong on the wing, and their flight, though regular, is rather swift. Being fast runners, they generally try to escape on foot before they attempt to use their pinions. The young males are so exceedingly combative, that members of the same brood indulge in contests in the autumn, but these are generally suppressed by the mother before they lead to bloodshed.

Audubon says that the males which he had domesticated were conspicuous for their courage, and would even fight the turkeys and dunghill cocks rather than yield their ground. They were more pugnacious in spring than at any other time, and strutted, tooted, and fought each other as they do in the wild state. He found the birds of both sexes readily amenable to domestication, for he had sixty in his garden at one time, and they became so tame during the winter that they would feed from his hand. These bred in confinement, but the broods were so destructive to vegetation that he was compelled to kill them.



PRAIRIE CHICKENS.

Pinnated Grouse are so abundant in portions of the West, that it is nothing unusual for a person armed with a breech-loading gun to bag from twenty to thirty brace in a day, but as they increase in numbers wherever civilized man settles, there is no danger that they will become scarce for many years to come, as they find an abundance of food in the numerous insects that live on the prairie, and the grain left in the stubble fields. They are said to follow man wherever he goes, the proof of this being furnished by their presence in several cultivated regions beyond the Rocky Mountains where they were unknown a few years ago. They have now been traced as far westward as Nevada, and will, no doubt, soon be found beyond the Sierra Nevada, in California. The western sportsmen have a saying that the Pinnated Grouse follows the railroad, whereas the Sharp-tail flees before it, and they infer from this that the former can thrive in the vicinity of man, but that the latter cannot. Several experiments which have been made, prove that it is readily susceptible to domestication, and that, in contradistinction to the usual habits of its family, it will not only pair but breed in confinement. Another great advantage it possesses over its kindred is, that it is not very migratory, and manifests no desire to leave the vicinity of the barnyard if it obtains plenty of its favorite food, and an opportunity of taking an occasional run in the grass. Its domestication would evidently prove profitable, as it is very prolific, weighs from two to nearly three pounds, and has rich and succulent flesh. One curious fact about the flesh is, that it often turns dark after a few frosty nights, and loses much of its pleasant flavor. Those who are epicurian in taste do not like it so well then as in the earlier portion of the season, so it may be said to be in prime condition only between the fifteenth of August and the first or middle of October. The shooting season really closes about the first of November, for after that time the birds become so wild that they will not lie well to the dogs; but persons who wish to try their skill at long ranges will find this and the following month best for their purpose, provided they do not care for long tramping and a small bag. When the shooting is about over the trapping commences, for as soon as the snow causes the birds to seek the woods for shelter and the cornfields for food, vast numbers are trapped by means of every known device, and forwarded to the Atlantic States and Europe. This method of capture is made easy by the habit the creatures have of uniting in large packs as soon as the weather becomes frosty, and of travelling together, even into the snares set for them. The general habits of the Prairie Chickens are now so well known that experienced sportsmen know where to seek for them at any time of the day or year. They are found in stubble fields and patches of flax and beans during the morning in the early part of the season, or on ridges and hillocks where the grass is short; but about ten o'clock, when the sun begins to get hot, they retire to the long grass and lie there until four or five o'clock P. M., when they resort to the fields again for food. They are sure to be found on the lee of a ridge if the wind blows strongly, and near the margins of sloughs in the evening. The cornfields are favorable retreats during the middle of the day, as the long stalks protect them from the glare of the sun, and the ground is loose enough to enable them to enjoy their dust bath, which is their panacea for parasites. Dogs find it very difficult to work them up in such localities, owing to their habit of skulking and the dryness of the earth. The sportsman also learns in a short time that he cannot make a large bag in tall corn, as he must depend entirely on snap shots, and he cannot mark them down when they alight after being flushed.

The most experienced sportsmen rest during the heat of the day, and depend on morning and evening shooting for making their big bags, as the birds lie better to dogs then than at any other time. They are also found more promptly, as their scent is strong, and is borne some distance away by the gentle breezes that generally blow for a few hours after sunrise and before sunset. They remain in the stubble fields all day in damp or cloudy weather, unless driven out by beating, and as they are then very tame, a person may approach them to within a few feet before they flush. The result is, that his bag is generally heavy, for the cool air and exercise brace up his nerves to such a pitch that he may score with his right and left barrels, in the majority of cases, without much trouble.

Later in the season, that is, from about the last of October to the latter end of December, the middle of the day is an excellent time for pursuing them, as they like to bask in the sun in open places: but as they are very wild, strong on the wing, and fly rapidly, it requires good shooting and hard hit-

ting to kill them. When flushed, if the day is cold and the wind blustry, they may fly ten miles or more before they alight. It takes No. 6 shot and a good choke-bore to bring them down at that time, whereas, No. 8 or 9 is fully large enough in the early part of the season.

They seem to be wilder in cloudy or rainy than in fine weather, late in the autumn, for they take wing almost as soon as they hear the human voice, or detect the presence of a dog, but on sunny days they will often permit the animal to approach them to within fifteen or twenty yards, as if they were too lazy to fly, or revelled so much in the sunshine that they disliked leaving the spots where its warm rays fell. When they do rise, however, it is with a startling whirr, and as soon as they get fairly on the wing they scud away at such a rate of speed that it requires a close, hard-hitting gun to stop them. Most of the birds spring from their shelter on hearing the voice, or the report of a gun, but several may stay behind, and as these often rise singly before a dog, a man can grass the majority of them. When the ground is covered with snow, they may be readily found in the timber, as they keep cackling, crooning, and chattering to one another, like domestic fowls when roosting.

Bee Notes for July.

It has been asserted that it injures the queen to have her wings clipped. This is not true. Structurally, the wing is very simple; it consists of a thin membrane, spread over veins which are firm, and consist of a double tube, one inside the other. The inner tube carries the air, and the outer the blood to nourish the wing. Clipping has been practised by many of our best apiarists for years, and no one has ever detected the least harm from it. Ants do the same thing by their queens, and for the same purpose. The advantage of this practice is great. There is no danger of losing a colony. The bees will come forth from the hive, and the queen will, as usual, attempt to follow, but is unable to go with the swarm. The bees will generally cluster, though they may not; and as soon as they find that the queen is missing, will go back to the hive. The queen may get so far from the hive that she can not return, but this is the loss of the queen, and is far less than the loss of a strong colony. In five cases out of six the queen will return all right.

This practice not only saves bees, but time as well. The hiving of swarms is often a great task, and when they alight, as they sometimes do, at the very top of a tall tree, it is well nigh impossible. This matter becomes still more serious when several colonies come forth at once. They often cluster all together, and the trouble of separation and properly hiving them is great. If the queen's wing is clipped, all of this is saved. One has only to go to the front of the hive, and as the queen comes forth, which is usually late in the exit, pick her up and put her in a cage; a tumbler turned over her in the new hive will do. Next remove the old hive a few feet temporarily, and put the new hive containing the queen on the old stand. It is well to fill the new hive with "foundation," and to add one frame of brood, in all stages, from the old hive. The bees will soon come to the new hive, and when all have entered, the new hive may be put in the desired place, and the old one returned to its old stand. At nightfall, liberate the queen, and all is done. If it is desired to prevent any further swarming, we have only to examine the old hive, now nearly empty of bees, and destroy all of the queen cells but one, which should always be the largest. In this way hiving takes but a small amount of time and labor.

The best time to clip the queen's wing is when she commences laying. As soon as eggs are seen in the worker cells, which will be about eight days after the queen leaves the cell, we should clip the queen, as then there are few bees, and it is easy to find her. If the wing is clipped before there are eggs, very likely she may not have mated. The queen only mates on the wing.

Until one has had some experience, the clipping better be done in-doors, before a window; if the queen escapes, there will be no danger of losing her. She will fly to the window, and is easily caught. Catch the queen by the wings with the right hand, and let her feet rest on the left hand, taking care not to press her abdomen. She will not use her sting. With one of the fingers of the left hand, on which she is now resting, press down on her feet, so as to hold her. Then take a pair of small scissors, held in the now liberated right hand, and carefully cut off about one-third of one of the front wings. As the queen is resting on her feet, there will be little danger of cutting them. For years we have always clipped all of our queens, and have experienced only advantage. We could not think of keeping bees, and not practice this method.

Bees at the Fairs.

At the last National Convention, which was one of the most pleasant and profitable bee-meetings ever held in America, it was resolved to make an effort to have many fine exhibitions at the State and district fairs of 1882. In England and other parts of Europe, these exhibitions are conducted on a grand scale, and excite much interest. They are thought to be great educators, and to stimulate the honey market to a large degree. Last year a very successful exhibition of this kind was held at Toronto, Canada. A similar exhibition was held at St. Joseph, Missouri. This, too, was a great success. It is the aim at these exhibitions to have a large show of honey, bees, and apiarian implements. Also to manipulate the bees, at certain specified times each day—behind a screen, so that no harm can result from stings. It is desirable to have a separate building, a little apart from the others, which need not be expensive, and where the bees shall be kept. It is important to secure the offering of generous premiums. The State and Central Societies of Michigan have already secured favorable action by two of the largest Agricultural Societies of that State. Let all other societies do the same. It is probable that in no other way can the interests of bee-keepers be so rapidly advanced.

NOTE.—The cold spring has been very unfavorable for bees. Those who have followed our advice and fed their bees, have done wisely. One of the largest bee-keepers of the country writes us that his bees stopped breeding entirely in May. This would not have occurred if he had fed liberally. There is no doubt that the Syrian and Cyprian bees are far ahead of the Italians in breeding early in the spring.

Notes on Time of Cutting Hay.

BY PROF. J. W. SANBORN, HANOVER, N. H.

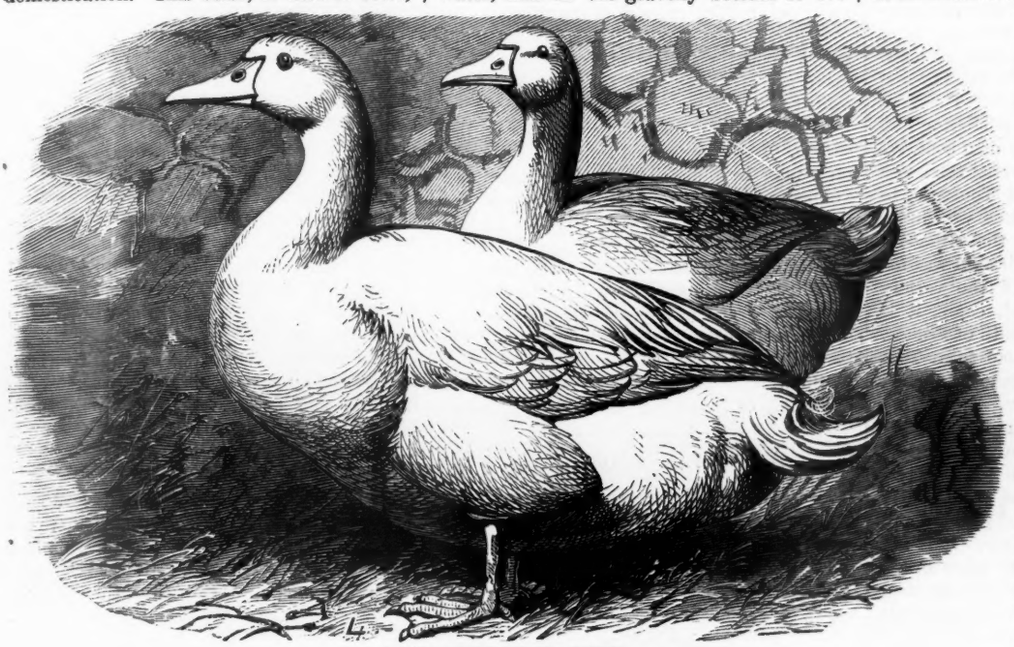
I have read the articles of Prof. Jordan, and the remarks in allusion to his and my work on "Early *versus* Late Cut Hay," in the June number of the *American Agriculturist*, and wish to add a word. I started with the belief that both practice and science taught that hay should be cut at least as early as bloom. My experiments have forced me out of this conviction, and turned my attention to the scientific side of the question, and I am convinced, from as thorough a study of the matter as present facts will admit, that science has far from shown that hay cut in bloom is superior to hay cut out of bloom. I am inclined to believe that the scientific facts of to-day rather favor the later cutting. The various materials classed under the general term, carbohydrates and albuminoids, and perhaps of fats, undergo a material change from bloom to a period subsequent to that time, and those changes, on the whole, are favorable to feeding value. The German digestion tables were for a long time considered conclusive on this point, in favor of the earlier cut hay. I deem them entirely inconclusive. First, digestion does not measure the amount assimilated, and if it did, it would be still inconclusive, for the food digested at bloom is not the food digested out of bloom, for, as already said, grass undergoes a material change in composition from bloom to a period subsequent to bloom. After four years of accurate trials, under carefully arranged conditions, I conclude that Timothy will grow from 30 to 40 per cent from bloom to fifteen days following; that a pound of later cut hay will make more growth of steer or of milch cow. It will produce less milk if cut more than a week after bloom, but it will have a higher percentage of cream. The total nutritive effect of hay, cut after bloom, if prior to a full formation of seed, so that it will "shell" in ripening, is greater.

How to Save Liquid Manure.

In ordinary farm practice, by far the larger part of the liquid manure of the stock kept is lost. No effort is made to save it. There is no barn cellar, no gutter behind the stabled animals, no absorbents. Analysis shows that the liquid manure is quite as valuable as the solid, or even more so. In 1,000 pounds of fresh horse dung there are 4.4 pounds of nitrogen, 3.5 of potash, and 3.5 of phosphoric acid. In horse urine there are 15.5 pounds of nitrogen, and 15.0 of potash. In 1,000 pounds of fresh cattle dung there are 2.9 pounds of nitrogen, 1.0 of potash, 1.7 of phosphoric acid. In the urine, 5.8 pounds of nitrogen, 4.9 of potash. These are the most valuable constituents of manure, and no farmer can afford to have them so generally run to waste. There is very little loss where there is a gutter-well supplied with absorbents, and a barn cellar well coated with dried peat, muck, or headlands, to absorb the liquids as fast as they fall. But barn cellars are still in the minority. Mr. Mechi had a very expensive apparatus for distributing the liquid manure over his farm, by means of tanks and pipes, and thought it paid, but failed to convince his cotemporaries of the fact. However that may be, it is out of the question to apply liquid manure in this manner, economically, upon the average farm. It takes too much capital, and requires too much labor. By the use of absorbents, it can be done economically on a small or large scale, with very little waste. Some use a water-tight box, made of thick plank, covering the floor of the stall. This is a very sure way to save everything, and the only objection to it is the expense of the box, and the increased labor of keeping the stalls clean. We used for several years dried salt-marsh sod, cut in blocks eight or ten inches square, taken from the surface of the marsh in ditching. This had an enormous capacity for absorbing liquids, and a layer of these sods would keep a horse or cow comfortably dry for a fortnight. Refuse hay or straw was used on top for purposes of cleanliness. The saturated sod was thrown into the compost heap with other manure, where it made an excellent fertilizer. Later we used saw-dust, purchased for the purpose at two cents a bushel, as bedding for a cow kept upon a cemented floor. A bed a foot thick would last nearly a month, when it was thrown out into the compost heap. The saw-dust requires a longer time for decomposition, but saves the liquid manure. Our present experiment, covering several months, is with forest leaves, principally hickory, maple, white-ash, and elm. A bushel of dried leaves, kept under a shed for the purpose, is added to the bedding of each animal, and the saturated leaves are removed with the solid manure as fast as they accumulate. The leaves become very fine by the constant treading of the animals, and by the heat of their bodies, and the manure pile grows rapidly. It is but a little additional labor to the ordinary task of keeping animals clean in their stalls, to use some good absorbent, and enough of it, to save all the liquid manure. What the absorbent shall be is a question of minor importance. Convenience will generally determine this matter. No labor upon the farm pays better than to save the urine of all farm stock by means of absorbents. These are in great variety, and, in some form, are within reach of every man that keeps cattle or runs a farm. Stop this leak, and lift your mortgage. CONNECTICUT.

Aylesbury Ducks.

White occurring without intermixture of other color in the hair or feathers of animals and fowls, is evidence of change effected by domestication. This color, or lack of color, becomes a very persistent characteristic. The accompanying engraving of Aylesbury Ducks represents one of the most beautiful of the white breeds of poultry. All white fowls are beautiful and attractive. We have white breeds of every kind of domestic fowl, and they all have such notable excellencies, that their admirers claim for each that it is the best of its kind. This is noticeable in white geese, which have the best plumage; white turkeys are most domestic, and white barn-door fowls are most prolific. Aylesbury Ducks are claimed to be more prolific and to fatten more rapidly for market than other large breeds. This variety undoubtedly originated in the vicinity of Aylesbury, England, where large numbers are still raised annually for the London market. Its characteristics are distinctly marked, namely: abundant but close-fitting plumage of the purest white; a beak of peculiar form, being long, straight, and broad, and set on a line with the forehead; most noticeable, however, from its being of a distinct flesh-color; it sometimes inclines to buff, but this is objectionable. The most delicate pink (as an English breeder enthusiastically said to the writer, "pink as a lady's nail,") is the color preferred; the legs are of a light orange color. Ducks and drakes are almost precisely alike, the latter distinguished only by the curling feathers of the tail and by the voice, or lack of voice.

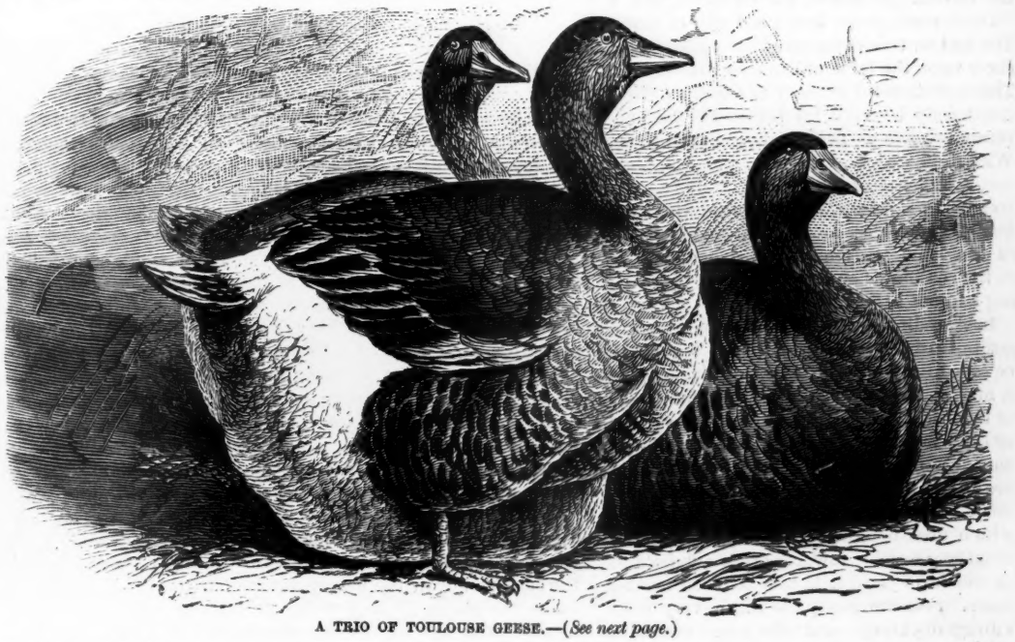


A PAIR OF AYLESBURY DUCKS.

This is an old and well-established breed, and in favorable locations, breeds very true. Breeders so located find it is not difficult to obtain the pink bills without stain of yellow or blemish of dark streaks or specks. This is supposed to depend upon the purity of the water, and on the gravelly bottom of the brooks with which their bills are constantly brought in contact. Exposure to the sun tans them, and, from some not well-known cause, it is almost impossible to obtain perfect bills in many places, though the birds grow large and fine.

It is customary in and near Aylesbury to confine the ducks in warm houses early in the season, and to induce the earliest possible laying, that the young ducks may be marketed very early in the season, and high prices secured. They come to the market just at a season when game and other poultry are scarce and high. Now, when the Aylesburys are removed, and, as in this country, are treated like other kinds of ducks, they retain this tendency to lay, and hatch a brood early in mid-winter, only for the first generation from importation; even then to a less degree than the imported birds show it. The tendency to lay very early would no doubt be maintained if it were encouraged as it is at home. In regard to the care of ducks, it is well to observe that the more a variety is changed by domestication, the more attention they need, and usually the more profit they yield. Many common ducks lay a clutch of perhaps 20 small eggs; in sitting, cover half or more, and hatch them out, while the Aylesbury Duck will lay 60 eggs or more, but until she begins to show a tendency to sit, usually a week or ten days before she sits, she makes a sort of nest, and there she deposits her eggs. The only way to secure all the eggs is to shut up the ducks at night. They will usually lay an egg apiece between dawn and eight o'clock, and as soon as each has laid, all may be let out. They all march straight for the water, and if let out too soon, some eggs will be almost surely found in the bottom of the pond. Ducks are voracious and almost omnivorous feeders; they are fond of grass and water plants, water-cress especially, and are diligent foragers for snails and the little shell-fish of fresh water streams, ponds, and swamps; and besides, on dry land, they are indefatigable insect hunters; young ducks being often very useful in a vegetable garden, where they gather and destroy many plant pests.

A pair of Aylesbury Ducks, fit for exhibition, ought to weigh at least 12 pounds; in England they often reach 16 pounds to the pair, and are occasionally heavier by one or two pounds, thus almost equalling the weight of the heaviest specimens of Rouen Ducks.



A TRIO OF TOULOUSE GEESE.—(*See next page.*)

Toulouse Geese.

The common gray goose possesses the markings of its parent, the wild goose of Europe and Asia, known in England as the "Gray Lag." The fine variety of which we give an engraving (page 285) has the same colors, except that the dark plumage is of much richer hues, and, by contrast, at least, the light feathers whiter, while the bill and legs are of a deep orange color. The Toulouse Geese early develop a deep-hanging fold of skin pendant, like the keel of a boat, beneath the body. The evidence that the breed originated in the vicinity of Toulouse, in France, is meagre. Nevertheless, we cannot countenance the suggestion that they received their name because their skin was *too loose* for them. The first of the variety which were seen in England, came, it is said, from Marseilles, in the south of France. Those purchased probably came from Toulouse to Marseilles, for this name is applied to no distinct variety in France.

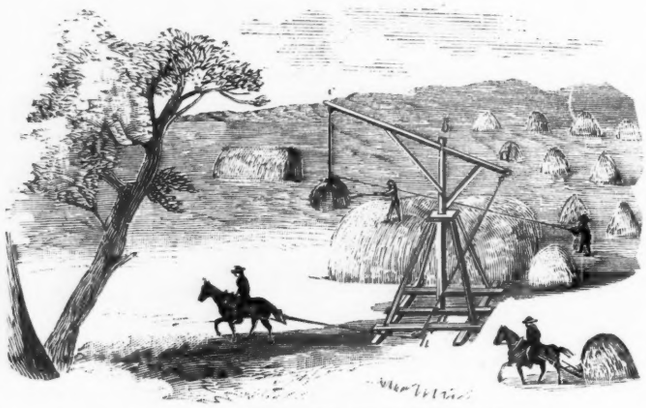
Toulouse Geese, when not inordinately forced for exhibition, are hardy, early layers, and reasonably prolific, often raising two broods of goslings a year. The young early take care of themselves on good pasture, and grow with astonishing rapidity. It is not well to let them depend wholly upon grass, but at first to give a little wet-up oat-meal daily, and afterwards a few oats or handfuls of barley, thrown into a trough or shallow pool, to which they have access. Geese bear, with little danger, any degree of pampering and stuffing, but in our experience this is likely to produce such accumulations of internal fat as to prevent fecundity. These fine fowls attain, on a good grass range, nearly double the weight of common geese, and, forced by high feeding, a pair have been known to reach the weight of 60 pounds. Twenty-pound geese are not rare. Early goslings, if well fed, will attain that weight at Christmas, and even a 10-pound "green gosling" is a delicacy which might well suggest the devout proverb of the Germans, that a "Good roast goose is a good gift of God." The fact is, that common geese make a poor show upon the table unless they are very fat. This is distasteful to many persons, and they can hardly be very fat before the late autumn, because we need grain to fatten them. With this variety, however, and the Embden, which matures early and attains a great weight also, it is different; the goslings are heavy before they are fat, carry a good deal of flesh, and are tender and delicious early in the season, when simply grass-fed, or having had but little grain.

In breeding geese, the surplus stock of goslings are killed off every year. None need be saved for wintering and breeding, except it may be well to keep one or two fine geese to take the places of old birds killed or hurt by some accident. Geese lay regularly, brood and rear their goslings well for fifty to eighty years, and it is said grow tougher every year. So if one has a good breeding goose, one which does her own duty well, and is reasonably peaceable towards other inhabitants of the farm-yard, it is best to keep her for years. Sometimes a goose will be very cross, killing ducklings and chickens, attacking children, etc. Such an one is a fit candidate for the spit. Ganders are generally much worse, and usually one more than five or six years old becomes absolutely unbearable. So provision is naturally made to replace the old ganders every three or four years. It is besides necessary to do so, for, though a young gander will attend four geese very well, an old one confines his attentions to one only, and often proves infertile at six or eight years old, getting crosser all the time.

A part of the profit of keeping geese depends upon their yield of feathers. When geese are bred carefully for exhibition and sale at high prices, only old ones should be plucked, and they only once or twice in the season. But when raised for market, the old ones may be plucked three times, and the young ones once before killing time, and the flock ought to yield, on an average, an aggregate of 18 to 20 ounces of dry feathers, besides considerable down, at the summer pickings. Common geese will yield about a pound of feathers a year, if close picked, and they are often picked cruelly close. This is unnecessary, for at the right time the feathers have a very slight hold, and the operation of plucking them is painless.

A Frame for a Horse-Fork.

Mr. Frederick Johnson, Clinton Co., Ill., sends us a sketch and description of the method of putting up the hay crop, that is much practised in his vicinity. He writes: "We shock our hay as soon as possible after it is cut, barely giving it time to wilt. If the weather is favorable, it remains in the shock two days, when it is stacked, and if it is well done, it looks bright and green. If bad weather is coming on, we stack in the afternoon what has been cut in the forenoon, taking it up from the sward with a hay-gatherer, but it is best to leave it in shocks for at least two days. The derrick is a simple affair, and saves a vast amount of hard labor. It is placed on two sticks of timber, shaped like sleigh-runners at the ends, so that it will drag easily from one stack to another. The mast, *a*, *b*, is 22 feet high, and the cross-piece, *c*, *d*, 16 feet long; it rests on the middle stringer, and an iron pin keeps it in place at *a*; pulleys are placed at *c*, *d*, and *h*; with the braces and collar, the derrick is complete. When ready for stacking, place the derrick two feet from the stack bottom, always on the side, and draw the hay up at the end. (I make the stacks 10 feet wide, and 20 feet long.) Drop the hay in the center of the stack, and the stack will stand straight when it settles." The structure and method of operation of the derrick is shown in the engraving which is given above.



A METHOD OF GATHERING AND STACKING HAY.

Poultry.—Food and Feeding.

BY D. Z. EVANS JR.

Poultry breeders, as a rule, pay too little attention to food and feeding, which accounts, in a great measure, for the frequently meagre profits—if there be any at all—from the fowls. Those who exercise care and judgment in all the varied details of poultry management, have the best balance to show at the end of each season. While almost every other matter connected with the breeding and rearing of poultry has had particular attention paid to it, corn has been the rule, and the quantity, quality and time of feeding, has seldom been considered worthy of attention. Fowls with unlimited range, securing most of their living during the late spring, summer, and the early fall months, do not suffer from the feed so much, as do birds penned up during the entire breeding season, at least within the narrow confines of a small yard or run, and dependent entirely on their owner for the quantity and quality of their food. Pure-bred fowls are those which suffer the most from neglect. In most cases,

Special Foods

are desirable. Laying hens or pullets, do not require such food as will induce them to acquire a superabundance of fat, for this at a certain stage prevents the production of eggs, rendering the birds sluggish, and disposed to fatal diseases. When the birds are to be fattened for immediate consumption, then strong, fat-producing food is needed, and in liberal quantities. Corn, in its different forms, is the best and cheapest, no doubt, for this purpose, while for laying hens, wheat, wheat-screenings, etc., are preferable, and generally used by successful poultry breeders. Aside from its being better than corn, wheat is also as cheap. One of the greatest helps to successful poultry management, and one upon which frequently hinges the question of profit or loss, is

Regularity in Feeding

the stock. This is readily proved by dividing the flock, and feeding each lot with the same kind and quantity of food, giving one the food at regular intervals, and giving the other lot their rations when it is the most convenient. In two or three weeks, carefully note the result, and it will surprise even the most casual observer. By feeding those fowls which have full liberty at regular times, all are sure to return home on time, thus preventing straying of the birds. This rule is especially good with turkeys, which are naturally such great strollers. In summer, six A. M., and six P. M. are very good times, though it is generally best to make the evening feed about five o'clock, or a little before, where it can be conveniently done. On grain farms, where the fowls are permitted to stroll around at will, one feed a day, in the evening, is all the birds require. There is some little art, if so we may style it, in

Feeding Young Chicks,

to make a healthful and vigorous growth. Fully nine-tenths of the mortality amongst poultry, from sickness or disease, occurs while the chicks are still in the "downy" state, and the majority of this loss occurs from improper food, and careless or ignorant feeding. Corn-meal, which is far too generally used, is unfit for young chicks, being too heating for their tender and immature digestive organs. Corn-meal has killed more young chicks than rats. The best food we have ever found for young birds is stale bread, either crumbled up and fed dry, scalded and fed when cool, or else merely moistened in fresh milk. Where milk is abundant, it should always be used, and if the young birds get plenty of milk, in some form, they will grow so rapidly as to astonish those who have never given milk liberally to their poultry. We know of one breeder, a large dairyman in Chester County, Pennsylvania, who feeds the principal part of his refuse milk to his poultry, old and young, and his birds are not only singularly free from disease, but large, and finely developed in body and feathering. This breeder gives milk the credit of it all, but it may be due in part to excellent care.

A Farm Post-Driver.

BY T. H. IRWIN, LUCAS CO., IOWA.

Observing many useful labor-saving contrivances in the *American Agriculturist*, to facilitate operations on the farm, I here contribute something that may be of use to some of its readers. In this part of the West (Iowa), the fence-posts to be set are usually roughly pointed, and then driven into the ground with a maul or heavy sledge, the operator standing on a stool, box, or barrel, or in a wagon, to get the necessary elevation. To swing a heavy maul or sledge all day is not an easy task, and it is often difficult to hire men willing to undertake such heavy labor, especially when a farmer has a mile or more of fence to build. This method is largely employed here, and posts so set are found to be much firmer,

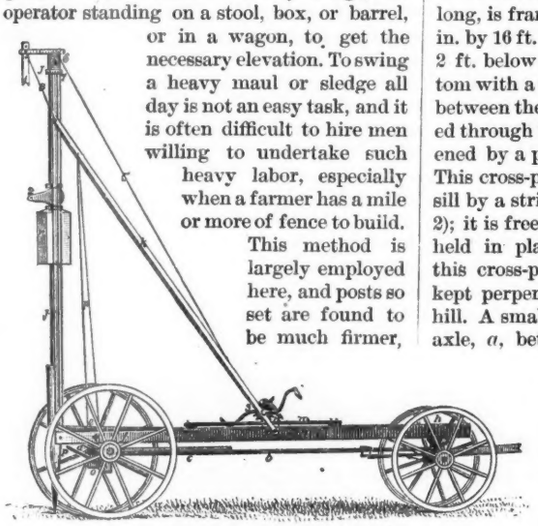


Fig. 1.—THE POST-DRIVER.

and are less affected by frost than if set in holes dug with spade or post-auger. When the frost is just out, in early spring, the posts are quite easily driven, but it is usually a muddy, disagreeable job at such a time, and the farmer cannot always be ready to do the work just when the ground is in best condition. Having a great many posts to set almost every season, I built a machine for driving them, and am well satisfied with its workings, for I can now drive posts when I am ready, and in any ground, even in an old solid road. The posts are not split and battered, as when driven by a sledge, and I do not have to employ extra strong help at extra wages. An axle, *a*, fig. 1, of hard-wood, 8½ ft. long (mine is made of a hickory sapling), has spindles shaved to fit the hind wheels of a common wagon, which are fastened on by linch-pins, leaving about 6 ft. space between the hubs. A coupling-pole, *b*, 13 ft. long, is framed in and strongly braced, *c*, at right angles with the axle, and connects at the front with the front axle of a common wagon. The main sill, *d*, is one stick of timber, 6 by 8 in. by 14 ft.

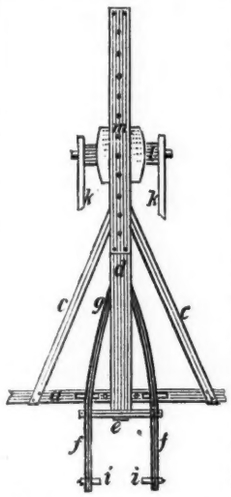


Fig. 2.—BOTTOM PART OF DRIVER.

long, and has a cross-piece, *e*, framed in the end. Two side-pieces, *f*, are 2 by 4 in. by 5 ft. long, are pinned or bolted to the main sill at *g*, and cross-pieces framed into them as shown in fig. 2, so framed that the lower edges of the side-pieces will be 2 in. from the axle, when the main sill rests on the axle. The side-pieces, *f*, should be 22 in. apart at the ends; the front end of the main sill rests on the front axle, in place of a bolster, and the "king-bolt" passes through it at *h*; the upright guides, *i*, are 2 by 4 in. by 14 ft. long, bolted to the side-pieces, *f*, with a space of 14 in. between; a cap, *j*, 2 by 3 by 26 in. long, is framed on top. Two braces, *k*, 2 by 4 in. by 16 ft. long, are bolted to upright guides, 2 ft. below the cap, and connect at the bottom with a cross-piece, *l*, 2 by 8 by 22 in. long, between the braces. It has rounded ends passed through 2-in. holes in the braces, and fastened by a pin outside, to form a loose joint. This cross-piece, *l*, is held down on the main sill by a strip, *m*, and steadied by cleats (fig. 2); it is free to slide back or forward, and is held in place by a short pin; by moving this cross-piece, the upright guides, *i*, are kept perpendicular when going up or down hill. A small windlass, *o*, is placed under the axle, *a*, between hangers framed into the axle, close to the hubs. Two brace-ropes or wires, *p*, are fastened to this windlass at the extreme ends, and wound around it a turn or two, each in an opposite direction, drawn tight and fastened to the main braces near the top. By turning the windlass, *o*, slightly, by means of a short bar, stuck in a hole, the machine may lean to either side, to conform to sidling ground, thus being adjustable in all directions. The maul, *r*, of tough oak, 14 by 18 in. by 2 ft. long, weighs about 200 lbs., is grooved to fit smoothly between the guides; the follower, *s*, is more plainly shown in figs. 3 and 4, also the simple latch by which the follower and maul are connected and disconnected. The square clevis, *t*, is of ¾-inch iron, suspended from the same iron pin, *u*, on which the pulley, *v*, is placed. It is partly imbedded in the wooden casing, *w*, which is 8 by 18 in.; this casing serves to inclose the pulley, *v*, and also to trip the latch when brought together; the clevis, *t*, is caught under the hook fastened in the maul, is pressed into place by a small hickory spring, *y*, acting on a small iron pin, *z*; when it reaches the top, the crotch, 1, suspended from the top, comes in contact with the pin, 2, and the clevis, *t*, is pressed back, and releases the hook, *x*, when the maul drops; the windlass, 3, has two cranks, and a ratchet for safety and convenience. The rope passes from the windlass over the pulley at the top, down and under the pulley, *v*, then up, and is fastened at 7, on the cap, *j*, wire braces at 8. By releasing the cranks and ratchet, the follower will run down the guides, and, striking the maul, will "click" the latch into place, ready for another hoist. For two men it is easy work, and can be handled quite rapidly. Drive astride the proposed line of fence; lay a measuring-pole on the ground to mark the spot for the next post; drive forward with the post-driver, having the maul partly raised; set up a post, and "heave ahead."

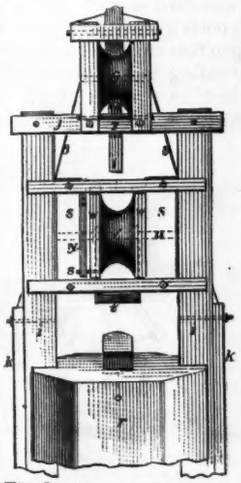


Fig. 3.—THE UPPER END OF THE UPRIGHT.

Hair Balls in a Sheep.—Mr. J. Davis, Colman Co., Texas, sends us some balls, from ½ to ⅞ of an inch in diameter, found in the stomach of a sheep. They are popularly known as hair balls, a form of concretion frequently found in the intestinal canal of animals. These specimens are principally composed of fibres of wool, with some fragments of vegetable matter derived from the food and intestinal secretions. They could not have been the cause of death, as they are often found of considerable size in the alimentary canal, and particularly in the stomach, of healthy animals. When, from their form or size, they become a source of irritation they may produce disease, but under ordinary conditions they may be considered as harmless. Intestinal concretions vary widely in composition, and they often have a distinct nucleus, around which the remainder of the mass is formed. Hair balls several inches in diameter are not uncommon in the stomachs of cattle, and they are often quite hard, from the large proportion of mineral matters they contain. An intestinal concretion, measuring 28 inches round, and weighing 19 lbs., is reported as having been found in a horse; the nucleus was composed of oats. In Scotland, where oat-meal is a common article of diet, intestinal concre-

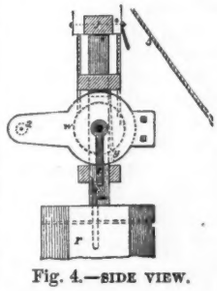
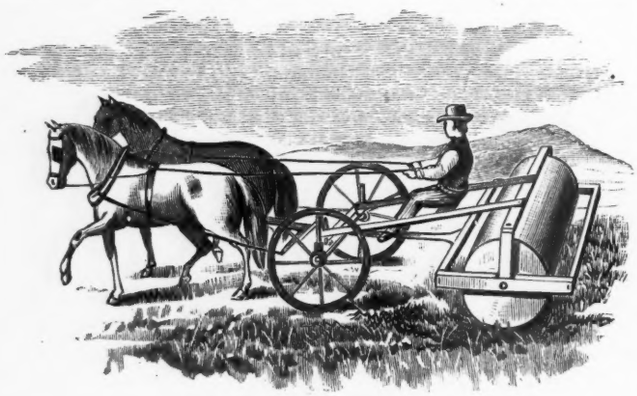


Fig. 4.—SIDE VIEW.

tions composed of the hulls of the oats were of common occurrence, but as greater care is now exercised in preparing the grain for human food, these peculiar intestinal concretions are becoming comparatively rare.

A Bush-Roller.

Mr. "E. D. W.," Plumas, Co., Cal. sends us a sketch of a device which he has made for clearing sage-bush land. It consists of a roller 8 feet long, and 2½ feet in diameter, coupled by a short tongue—6 feet is long enough, to the forward wheels of a wagon. A standard at each end of the roller-frame supports a cross-piece just clear of the roller. Upon this cross-piece, about 4 feet apart, and extending to the bolster of the wagon, are bolted two pieces of 1¼ by 6-inch spruce boards. A board is placed across the center for a seat, thus making a complete and easy inclining "buck-board." Mr. W. writes: "With a span of good horses and this 'machine,' one can roll from eight to ten acres of sage-bush in a day; and it is so easily killed, that in two or three weeks after such treatment, it will burn off like a prairie on fire. I also use the same for every purpose requiring the use of a roller on the farm, finding it much easier on the horses in turning than the common roller."



A HOME-MADE BUSH-ROLLER.

Permanent Pasture.

BY PROF. G. C. CALDWELL, CORNELL UNIVERSITY.

One might suppose, after searching in vain through the pages of many of the smaller works on agriculture for some information about pastures, that they are of small account to the farmer; and yet no one will deny that, under suitable conditions of soil and climate, they have a very important place in the farm economy. Many pastures are taxed beyond their powers for carrying the stock of the farm, and in too many instances are crowded off into parts of the farm where the soil is too poor for tillage, and even then treated with the utmost niggardliness as regards care or manuring. With this as the common idea of a pasture, making it little better than wild land, it is no wonder that it escapes mention in so many books, that treat of nearly everything else pertaining to the farm.

On a rich Leicestershire (England) pasture, it was estimated by Dr. Lawes that an increase of 500 lbs. in live weight of fattening oxen was produced on each acre in six months' grazing. In experiments at Woburn, 3,500 lbs. of clover hay, 1,600 lbs. of corn or oil-cake, and 5 tons of Swedes were required to give the same amount of increase; these quantities of fodder were estimated to be equivalent to 3½ tons of English hay. Boussingault states that on some of the rich pastures of Holland, an area of a little more than two acres has been found sufficient to fatten an ox in 5 to 6 months' grazing, and that on the most fertile bottoms near Dusseldorf, about ⅜ of an acre is sufficient to keep a milch cow. When a fattening animal is started in fair condition on a good pasture in spring, many results in England have shown that a gain of from 1 to 1¼ lb. a day may be counted upon. These estimates of the productive power of pastures differ not a little, but nevertheless they combine to show what can be done with grazing land if it is decently treated.

What is good treatment of a pasture? Good pasture cannot be made on poor land. Such parts of the farm as are too poor for tillage, are also too poor for pasture; better encourage the growth of wood there, than to starve cattle and make the land only less and less valuable every year, if indeed it can be made any poorer. It should be clean land; if charged with the seeds of weeds by previous neglect, these must be cleaned out as completely as possible by culture of hoed crops, before laying down to grass. Thistle and dock pasture may be good for donkeys, but not for cows. If the weed seeds have an even chance with the grass seed, the grass will have but little hope of getting the upper hand, even though it has such a wonderful power of taking possession of the land where it once secures a good foothold.

The land should be seeded with a large variety of nutritious grasses. An English farmer, in the Journal of the Royal Agricultural Society, mentions sowing 228 lbs. of seed on six acres, comprising 16 different kinds of grass. With such a variety the sod becomes more perfect, and the yield is larger, more uniform through the season, and more nutritious. Mr. Geddes prescribes 24 lbs. of seed per acre, comprising 6 kinds of grass—red clover, timothy, red-top, orchard grass, alsike, and white clover. It is not unlikely that, by following the English custom, and sowing a still greater variety of such grasses as will thrive in our drier climate, we would get a better and more durable sward, and a better pasture. The work of making a pasture does not end here; the English saying, that "to make a pasture, breaks a man," may be taken as showing that even in that country, where, with a cooler and more moist climate, it is easier to get and keep a sod than here; it is not a light matter of a year or two to establish a good and durable pasture. Dr. Lawes says that it took him 15 years to make a really good permanent pasture for fattening animals, on a portion of his estate. It is a common practice in England to feed cotton-seed cake to the stock grazing in the pasture in the first few years after laying it down, in order to increase the richness of the manure dropped on the land. The critical period in the life of the pasture arrives in the second or third year; and if concentrated fodder has not been given to the stock, manure must be applied to carry the young sod safely through this period.

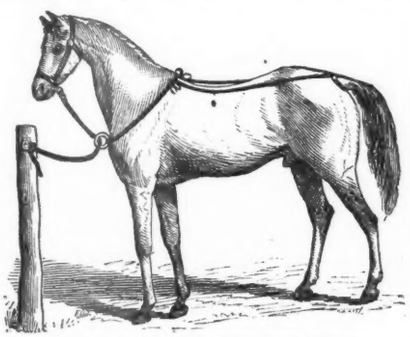
It is singular that the notion should be so widely prevalent, even perhaps among those who give some thought to their grazing lands, that a pasture will take care of itself, and all the manure made on the farm or bought may be put on the tilled land. This idea is as wrong as it is to suppose that wheat or corn can be raised year after year on the same soil without manure. Milch cows occupy our pasture lands as often as any other stock; and in their milk, phosphates are carried off from the soil of the pasture to such an extent as to lead, sooner or later, to certain exhaustion, just as surely as in the continued cultivation of wheat on tilled land. The effect of the exhaustion is plainer to the eye in the diminished crops of the wheat field than on the pasture, which may perhaps continue to look green and thrifty, while poorer grasses are all the while creeping in and displacing the finer kinds, which require a richer soil. The pasture must be treated with its share of the available manure of the farm, or else it will run down. With favorable climatic conditions, it is undoubtedly cheaper to keep a pasture, once well made, in good heart for a number of years, than to let it run out for want of food, and then make it over again. Dr. Lawes' doctrine, the result of his own experiments and observations is, that pasture land must be well stocked with nitrogen and potash, and that phosphate must be supplied from time to time, as well as the other two important plant nutrients, to replace what is carried off in the produce sold. Hence a top-dressing of fine bone-meal is likely to prove beneficial, although there are cases where the use of phosphate has done but little good. Nitrate of Soda is often used with good effect, at the rate of from 100 to 150 lbs. per acre in the course of the year; and the statement is very emphatically made by those who speak from experience, that frequent dressings of manure, in small doses, produce better grass than when the whole quantity for the year is applied at once. Plaster has sometimes produced excellent results on pastures by bringing in that most desirable forage plant, white clover, and wood ashes have also produced a similar effect. There can be no safer dressing than rotted manure, put on in the spring, when the plants will soon be ready to take it up; but if all the available stock of this manure is wanted for the tilled land, then artificial manures should be used.

Pumpkins are usually grown as a "stolen crop," that is on land not specially devoted to their production, the seed being planted in "every other hill of every other row" of corn or even of potatoes. While not very nutritious they have a certain feeding value, due in part to the sugar they contain and, perhaps in a greater degree, to the fact that they gratify and stimulate the appetite and cause the animals to consume a larger quantity of other food, and digest it more thoroughly. But whether it really pays to grow pumpkins, some think an open question, for on general principles, it may be said that if

a crop is worth growing at all it is worth having land devoted to it, and a suitable cultivation. Yet it would hardly pay to devote land to the production of pumpkins. A good crop might easily be secured and it would possess some value. But, with a little more expense, the same land might be made to yield a crop of squashes, which would be much more nutritious and valuable. When grown in connection with other crops the squash does not succeed as well as the pumpkin. It does much better with potatoes than with corn, but is not a sure crop when planted with either of them.

A Halter Attachment for a Pulling Horse.

The accompanying engraving, from a sketch sent us by G. D. John, Whiteside Co., Ill., shows a device to cure a horse of the bad habit of pulling upon the halter. A 1/2-



REMEDY FOR A HALTER-PULLING HORSE.

inch rope passes around the shoulders and along the back, under the tail; the halter-strap is run through a ring on the rope at the front of the shoulders, and then it is attached to the post or manger; a short piece of strap is used to fasten together and hold up the two parts of the rope that pass along the back. When the horse pulls upon the halter, a pressure is brought under the base of the tail, and the habit is soon abandoned.

A Barrel Well-Curb.

Mr. I. G. Fargo, Genesee Co., N. Y., writes us: "Perhaps some of your readers may be interested in my well-curb, which is convenient and durable. A common cooper made it, setting up the staves, which are 1 1/4 inch thick, as for a barrel, using 3 iron hoops. The shaft of the windlass is also of iron, to which a wooden cylinder is fastened by a couple of bolts driven through the wood and iron. In making the windlass, I fashioned the wood to the right size, and then split open the cylinder, cut a place for the shaft, fitted it in, and then drove bands over the ends. But a great deal will depend, as to its cheapness, whether one has the material on hand to make it. In this case I had the lumber (white-ash) for the staves, old wagon-tire for hoops, and a shaft for the windlass from a threshing machine cylinder. Even the spout was appropriated from an old chain-pump." Such a curb is strong, and looks much better than a common square one.

A "BARREL" WELL-CURB.

A Few Facts about Ensilage.

BY PROF. J. M. MCBRYDE, UNIVERSITY OF TENNESSEE.

The following facts bear directly on two of the most important questions connected with the subject of ensilage. 1st. The estimates of the loss involved in the process vary. By some the loss is considered ruinous, by others infinitesimally small. The methods of determining the loss vary as much as the estimates. It is deduced from the percentage of ash or of dry matter in the ensilage, from the weight of small quantities of green forage packed away in bags or boxes in the silo, or a cubic foot of the ensilage, etc. Such methods are confessedly inaccurate. The only safe procedure is to weigh every pound of green matter put into the silo, and every pound of ensilage taken out of it. All the green forage put into our silos last October was accurately weighed. Silo No. 3 (built of brick, and lined with cement) was opened early in January last. The ensilage was of excellent quality, with a pleasantly vinous odor. This silo was not exhausted until the last of March. Every pound of the ensilage was fed to our cattle after being first carefully weighed. We put 66,630 lbs. of green forage into the silo, and took out 52,890 lbs. of ensilage. This shows a loss of 13,740 lbs., or 20.62 per cent. The loss was no doubt increased by the length of time the silo stood open (nearly three months), and is, perhaps, greater than what would occur in general farm practice. It would appear from these figures that a farmer can reasonably expect to get 1,600 lbs. of ensilage from every ton of green matter. Will any of the other methods of curing or preserving forage crops give him equal, or anything approaching equal, returns in weight? But it will be immediately replied, "If not equal returns in weight, they certainly will in the superior quality of the food so preserved." Many hold that the loss falls principally, if not entirely, on the organic matter of the ensilage. Some assert that from 20% to 50% of this matter is destroyed. The nutritive value of ensilage is a physiological question, that can only be practically settled in the stall. If the greater part of the organic matter is destroyed by fermentation, and the ensilage is but little better than so much acidulated water, a few simple feeding tests will bring out the facts more effectually than a dozen analyses. And if it should be found that 4 lbs. or 5 lbs. of green forage, converted into ensilage, are only about equal in feeding value to 1 lb. of the same matter made into fodder or hay, then, clearly, the large saving of weight secured by the process of ensilage would not be sufficient to counterbalance the loss of nutritive value. If, on the other hand, 2 lbs. or 3 lbs. of ensilage are equal to 1 lb. of the dry forage, this saving of weight would be a matter worth considering.

In the August No. (1881) of the *American Agriculturist*, I gave a short account of numerous experiments bearing directly on this point. The results of these showed that, in mixed rations, 2 lbs. of ensilage would fairly replace 1 lb. of good hay. The same experiments, carefully repeated last winter, afforded results confirmatory of those of the preceding year. It should be premised that the animals experimented with this year were not the same as those fed last year, and also that all were fed, for about a month previous to the commencement of the tests, on a mixed ration of hay and ensilage—2 lbs. of corn ensilage were fed against 1 lb. of hay. The tests continued through the month of February. In order to allow of easy comparison, the amounts actually fed to each animal are not given, but simply the ration, that is, the daily ration allowed for every 1,000 lbs. of live weight. Three animals, all yearling steers, were fed exclusively on long forage: No. 10, weighing 428 lbs., received a daily ration of 20 lbs. of hay, and gained, in the 28 days, 22 lbs. No. 9, weighing 457 lbs., received 10 lbs. of hay and 20 lbs. of ensilage, and gained 28 lbs. No. 12, weighing 442 lbs., received 40 lbs. of ensilage, and gained 38 lbs. It is evident that, in these three tests, 2 lbs. of ensilage gave better results than 1 lb. of hay.

Three 2-year old steers were fed on mixed rations of hay and meal: No. 4, weighing 770 lbs., was allowed 20 lbs. of hay and 6 lbs. of cotton-seed meal, and gained 70 lbs. in the 28 days. No. 5, weighing 800 lbs., was fed the same amount of hay, and 6 lbs. of corn-meal, and gained 50 lbs. No. 6, weighing 715 lbs., was given the same amount of hay, and 6 lbs. of durra-meal, and gained 55 lbs. Three 3-year old steers were fed on mixed rations of ensilage and the same meals: No. 1, weighing 1,175 lbs., received 40 lbs. of corn ensilage and 6 lbs. of cotton-seed meal, and gained 65 lbs. No. 2, weighing 1,150 lbs., received the same quantity of ensilage and 6 lbs. of corn-meal, and gained 77 lbs. No. 3, weighing 1,040 lbs., received the same quantity of ensilage and 6 lbs. of durra-meal, and gained 70 lbs. It is sufficient for our purpose to notice only the relative effects of the hay and the ensilage. On comparing the results of the two sets of tests, it is seen that No. 4, fed on 20 lbs. of hay and 6 lbs. of cotton-seed meal, gained 5 lbs. more than No. 1, fed on 40 lbs. of ensilage and the same quantity of the same meal, but that No. 2, fed on corn-meal and ensilage, gained 27 lbs. more than No. 5, fed on the same meal and hay, and that No. 3, fed on durra-meal and ensilage, gained 15 lbs. more than No. 6, fed on the same meal and hay. In two out of the three tests, the results were much in favor of the ensilage.

From March 1st to March 15th, all six animals were allowed 50 lbs. of ensilage and 6 lbs. of cotton-seed meal a day (for every 1,000 lbs. of live weight). The weights taken on the latter date (15th) show that No. 4 had gained 70 lbs. in the two weeks, No. 5, 50 lbs., No. 6, 55 lbs., No. 1, 45 lbs., No. 2, 20 lbs., and No. 3, 30 lbs. On comparing the effects of a change of rations on Nos. 4, 5, and 6, the remarkable fact appears that, in the case of such animal, 50 lbs. of ensilage and 6 lbs. of meal gave in two weeks exactly the same gain that 20 lbs. of hay and the same quantity of meal gave in double the number of days (28),—No. 4 gaining in each test 70 lbs., No. 5, 50 lbs., and No. 6, 55 lbs. On March 15th, our supply of ensilage being nearly exhausted, 12 1/2 lbs. of hay were substituted for 25 lbs. of the ensilage, and for a week each animal received a daily ration of 25 lbs. of ensilage, 12 1/2 lbs. of hay,

and 6 lbs. of cotton-seed meal. The change was made in order to prepare the animals for a ration of hay and meal. The weights, taken on the 22d, show, when compared with those of the two preceding weeks, that the change had, in the 7 days, injuriously affected all the animals except No. 2. This animal made a gain of 15 lbs., but No. 1, gained only 5 lbs., No. 3, 10 lbs., No. 4, 7 lbs., and Nos. 5 and 6, each 20 lbs. From March 22d to April 13th, each animal received daily 25 lbs. of hay and 6 lbs. of cotton-seed meal. The weights of the animals, on March 22d, were as follows: No. 1, 1,290 lbs., No. 2, 1,262 lbs., No. 3, 1,150 lbs., No. 4, 917 lbs., No. 5, 920 lbs., No. 6, 845 lbs. The same animals, on April 13th, weighed respectively, 1,280 lbs., 1,237 lbs., 1,155 lbs., 947 lbs., 940 lbs., and 835 lbs. It appears, therefore, that in the 19 days, No. 1 lost 10 lbs., No. 2, 25 lbs., and No. 6, 10 lbs., and that No. 4 gained 30 lbs., and No. 5, 20 lbs., and No. 3, 5 lbs. Compared with the rapid gains of the preceding periods, these figures are significant.

The results of these several experiments, carefully conducted and long continued, and agreeing so closely with those of last year, are very favorable to ensilage, and show that when mixed with nitrogenous matter, two pounds of it are fully equal in feeding value to one pound of hay. I should perhaps state here that samples of this ensilage, tested in our laboratory by Prof. Brown, gave 78.81% of water. Ensilage should not be condemned on purely theoretical grounds, for these experiments, while they do not support the extravagant claims of those who hold that the process is one that bids fair to revolutionize the agricultural world, and that its product is an all-sufficient and perfect food, certainly show that it is one well deserving of many further trials by practical farmers.

Silk Manufacture in the United States.

Silk culture in this country was almost strangled in its infancy, by the wild and unwarranted speculation in a variety of the Mulberry. Just now there is an awakening interest in the subject in some places—though the efforts are as yet confined to a small number of persons. There is no doubt that we have the proper soils and climates in some parts of our wide territory, which embraces almost every variety. As with Tea-culture, the question will very much depend upon the price of labor. In Italy and France, where a large portion of the raw material for silk—the cocoon—is produced, the wages paid to agricultural laborers range as follows:—

Daily Wages in	*France.*	*in Italy.*
Men without board and lodging	52½ cts.	38½ cts.
Men with board and lodging	22½ "	30 "
Women without board and lodging	18½ "	26 "
Women with board and lodging		10½ "

In 1874 we saw, in Naples, many women carrying earth in baskets from a cellar being excavated for a large hotel, whose daily wages, without board or lodging, were from 90 centimes to 1 lire a day in paper money, or 15 to 17 cents a day. But Italy is now advancing rapidly in prosperity, and the wages of all classes are increasing.

It will surprise most people who have not looked into the subject, to learn how greatly the manufacture of silk has increased in this country within a very few years. In 1850 the total manufactures of silk in the United States amounted to less than two million dollars ($1,809,476); in 1860 they rose to only $6,607,771; in 1870, to a little over twelve millions; while the census of 1880 reports over thirty-four million dollars ($34,519,723), with 31,000 workers, who received over $9,000,000 in wages. This amounted to over 40 per cent of the $85,000,000 worth of the home-produced and imported silk consumed in this country. Paterson, N. J., alone stands credited with $13,306,672 of silk manufactures, and employed 12,599 persons in this industry, who received $4,066,990 in wages. It is reported that about 15,000 persons are now thus employed there.

To produce the thirty-four and a half million dollars worth of manufactured silk, we imported a little over twelve million dollars worth of raw silk, all of which, it is claimed by the enthusiastic promoters of silk culture, may soon be grown here, despite the difference in wages. This is the present most interesting practical question in production.

WHAT ARTICLES OF SILK are made in this country is given in the following table of the values of each variety of fabric, etc., in 1880.

Ribbons	$6,023,100
Machine Twist	6,007,775
Dress Goods	4,950,275
Handkerchiefs	3,881,590
Cord, tassels, passementerie (gimp, etc.), and millinery trimmings	1,866,575
Upholstery and military trimmings	1,392,355
Satins	1,101,875
Braids and Bindings	999,685
Millinery Silks	891,955
Sewing Silk	776,120
Broad Goods not named above	627,595
Tie Silks and scarfs	606,675
Mixed Goods and silk values therein	510,763
Silk Laces	437,000
Floss Silk	225,025
Undertakers, Hatters, and fur trimmings	59,805
Coach Laces and carriage trimmings	37,510
	$34,510,843

Wooden Stable Floor.

BY L. D. SNOOK, YATES CO., N. Y.

It is not my purpose to discuss the advantage or disadvantage of a wooden floor for a horse stable, but to give a few hints on constructing the same. Elm makes an excellent and durable stable floor; the fiber of the wood is tough and yielding. The planks should be secured in position by wooden pins, as they are constantly liable to warp. Any of the soft oaks makes a good floor; the hard, tough varieties are unyielding, and until they

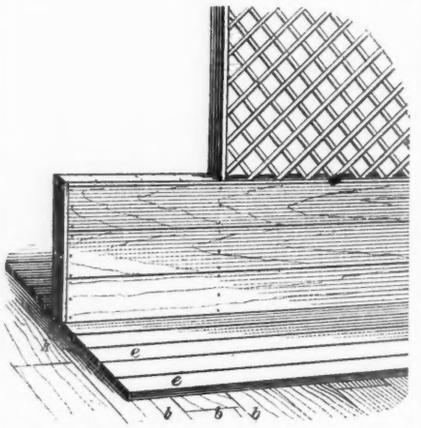


Fig. 1.—MANNER OF LAYING A STABLE FLOOR.

have been in use several months, horses are liable to slip and injure themselves in getting up. Both pine and hemlock make good floors, being soft and yielding, but they are not as durable as many other woods. Planks for a stable floor should be two and a half inches in thickness, and not laid until quite thoroughly seasoned, and then always put down lengthwise of the stall, and upon another floor laid crosswise, as shown at *b*, *b*, *b*, fig. 1. The planks of this floor, or cross floor, should be laid one inch apart, that they may the

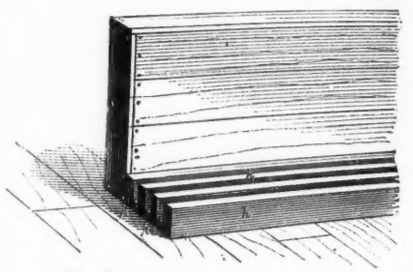


Fig. 2.—A SLATTED STABLE FLOOR.

more readily dry off, and offer a better ventilation to the floor above. Unless the upper floor is of material liable to warp, it should not be nailed or pinned, but made as close-fitting as possible. It is not profitable or necessary to have the stall planks more than 11½ feet in length, or extend farther back than the stall partition, as shown at *e*, *e*.

Fig. 3.—A CLEANER FOR SLATTED FLOOR.

This plan leaves a wide smooth walk behind the stalls at *k*, so necessary for ease and rapidity in cleaning the manure from the stable.

Some horse-keepers prefer a slatted floor, similar to that shown in fig. 2. Material of the proper length, 4 inches wide and 2 inches thick, is set upon edge, as at *h*, with a strip ¾ inch thick and 1½ inch wide placed between the slats, the whole made to fit the stall as closely as possible. By this method it is quite impossible for horses to become so dirty as when lying upon a common plank floor, as the space between the slats forms a most admirable channel for carrying off the urine. A few days' constant use somewhat clogs the passages, but they are readily opened by using a home-made cleaner, like that shown in fig. 3. Stable floors should have at least one inch descent in ten feet, and many make the descent three and even four inches in the same distance, but this is unnecessary. All stabled animals should stand upon floors as nearly level as is consistent with cleanliness.

Jersey Cattle.—For family cows, and butter makers, the Jerseys stand high among intelligent dairymen. They are working their way into the rural districts, and Jersey grades are now quite common in all the older States, and the more numerous in the better dairy regions. The true policy in every butter making district is to propagate the stock from a registered bull of good butter pedigree. An investment of one to three hundred dollars, is not beyond the means of any thrifty farmer, or of a farmer's club, in any community. The fifty or more calves that such a bull would sire in a season, would soon affect the butter production, and the prices, and in many ways stimulate agricultural improvement. Half and three-quarter Jersey grades, often give a rich milk, and in larger quantity, than the registered animals. If after "gilt-edged" butter, or a good family cow, a Jersey is pretty sure to give satisfaction.

The Swine of Ten States.

BY F. D. COBURN, TOPEKA, KANSAS.

Of the thirty-five to forty million hogs in the United States, three-fifths are raised in ten strictly Mississippi Valley States, viz:—Illinois, Iowa, Missouri, Indiana, Ohio, Kentucky, Tennessee, Kansas, Nebraska and Wisconsin. These States produce annually nearly three-fourths of the entire corn crop of the country. Fifteen years ago the great bulk of hogs grown in these States were white, or white color predominated, and little attention had been paid to their improvement, except to breed from the best of common stock of easy access in any particular neighborhood. But within this period of 15 years almost a revolution has taken place in breeding, quality, and color. Now comparatively few are raised which are not improved and approved breeds or their crosses, giving more compact forms, earlier maturity, easier fattening on less feed, and a large increase of valuable product from the gross live weight. Instead of being mostly white, eighty-five to ninety per cent of the hogs are now black or nearly so, and the two breeds that, pure and in their crosses, furnish the most of these swine are the "Poland-Chinas," an established breed that originated in the Mississippi Valley, and the "Berkshires," imported from England. There is here and there an occasional Essex Pig, also an English breed—the only other black one we have. The present white hogs are the descendants of the old common stock of that color, crossed more generally with the Chester Whites, of Pennsylvania, and to some extent with the English Yorkshires or Suffolks, which are small, and sustain the same relation to Chesters and other large white hogs, that the small Essex do to the invariably dark-colored Poland-Chinas and Berkshires.

Mr. Sherman, Superintendent of the Union Stock-Yards at Chicago, where more hogs are handled each year than at any other one point in the world, has recently stated to the writer that nine-tenths of all the hogs passing through these yards during the last three years were of the dark breeds.—The Superintendent of the Kansas City Stock-yards, where more than a million hogs were cared for in 1881, says that ten years ago half the hogs arriving there were white, while now ninety-three out of a hundred are black.—At the Kansas City Exposition of last year, no white hogs were shown, and at the two State Fairs in Kansas, at each of which some three hundred head were exhibited, there was but one white hog. An unusual degree of popularity enjoyed by one of the two leading breeds in any locality is offset by the same partiality for the other somewhere else. Each person who raises either one in its purity has full faith in its being good enough, and those who cross the two are confident the product is an improvement, in some respects, on either of its ancestral breeds.

In somewhat the same ratio that dark hogs have increased in popularity, there have developed improved methods of care and feeding, as well as breeding. But a few years ago Indian corn was considered by most farmers the cheapest, best, and about the only food specially desirable for either the growing pig or the fattening hog; now it is quite generally admitted that the hog is, to a large extent, a grazing animal, that thrives on grass, and makes a healthy rapid growth on various roots that are produced in large quantities easily and cheaply. Of the latter, artichokes and beets are good examples; and of the former, clover, alfalfa, and blue-grass.

THE PIG IN CLOVER AND ALFALFA.—The clovers have already come to be highly esteemed for swine, and Alfalfa is likely to soon become a prominent subject of experiment and inquiry in the same direction, according to the statements of those who know it best. Prof. Shelton, of the Kansas Agricultural College, has experimented with it since 1875, and does not now hesitate to say that one acre of Alfalfa is worth as much for hogs as five acres of Artichokes; that it furnished two or three times the amount of food that clover or blue-grass does, and will endure drouth better than any other crop, "not excepting white oak timber."—With its natural advantages, its rapidly developing resources, and improving methods, the Valley of "The Father of Waters" is likely in the future to furnish, of a better quality and for less money, the pork to feed the nations and the lard to lubricate their throats and machinery, than any other portion of the globe.

Mistakes will need to be guarded against, and one now apparently most imminent is a too close breeding, and especially from parents with constitutions degenerated by high keeping and the continued "refining," that within certain bounds has proved so beneficial. To assist in counteracting such an evil, and give an out-cross that will impart new vigor and stamina, some of the less known breeds—such as the Durocs or Jersey Reds—may in time answer a valuable purpose. Some of these various named, rust-colored hogs, are claimed as extremely hardy, and for crossing purposes may prove a valuable acquisition. In the hog family, as in the human, too much idleness and too long-continued high-keeping entails evil consequences.

Southern Pastures and Pasturage.

BY G. C. SWALLOW, PROFESSOR OF AGRICULTURE, MISSOURI UNIVERSITY.

The leading field crops of the South-west, which comprises Missouri, Kansas, Arkansas, Texas, and Louisiana are:—Herbage, Forage, Corn, Wheat, Oats, Rye, Barley, Rice, Buckwheat, Sugar and Molasses, Potatoes, Artichokes, Pumpkins, Cotton, Hemp, Flax, Tobacco, Hops, Castor Bean, and Broom-Corn.

Herbage, including all cultivated and wild plants upon which domestic animals feed in pastures, prairies, and forests, is by far the most abundant and valuable of all the productions of the South-west. It constitutes at least two-thirds of all the food of cattle, horses, mules, sheep and goats, and one-half of what is eaten by swine. Down to the present time these States have, for the most part, depended upon native grasses and other wild plants for the summer and winter grazing of domestic animals. The amount of forage and grain fed, is comparatively small. Our native grasses of the prairies and open forests (Oak Openings), are as nourishing as the cultivated grasses of the older States, as grown in open and woodland pastures. And besides, the pea-vines and cane cover large areas of the timbered bottoms or alluvial lands, with the best possible winter pastures.

Before these native pastures were overstocked, no better range could be found for cattle, horses, mules, sheep, goats, and swine. The prairies, which occupied fully one-half the area of these States, with their grasses so luxuriant as to hide the grazing herds, the deer and buffalo, were the best possible summer pastures; and the forests with their rank growth of pea-vines and cane, were the very best winter pastures. In these natural pastures the stock does as well as by the ordinary mode of grazing and feeding in the older and Eastern States. The mast and other fruits are an important item in this mode of raising stock. Vast numbers of cattle, horses, and sheep have been raised on these native pastures of the South-west, and for the last twenty years the largest amount of beef made upon herbage was driven from this region to our Eastern and Southern markets.

These natural pastures are not so productive as in years past. While large portions of Kansas and Texas still feed immense herds on their vast prairies, the older States find it necessary to resort to artificial means to keep up the needed supply of herbage.

Much inquiry and many experiments have been made to determine the best herbage plants for the improvement of our pastures. In Missouri and Eastern Kansas the Kentucky Blue-grass is the best for improving the pastures of those regions. This grass quickly spreads over the prairies when they are closely grazed, and over the timber when brushed-out and opened as woodland pasture; and this process is greatly accelerated by sowing the seed. Blue-grass furnishes a hardy and rapid growth of nourishing herbage grateful to all graminivorous animals. The largest and best cattle, horses, mules, sheep, and swine are raised almost exclusively on this grass. It starts early in the spring, grows rapidly in the summer, and makes the best winter pastures, when not grazed too close in summer and autumn. Clover is extensively used for summer pastures, and Rye to some extent for the winter. Timothy, Red-top, and other grasses are used to improve pastures of the northern part of this region.

In Texas and the adjacent regions of the South, several native grasses are relied upon for the improvement of pastures. Herbage plants, under the names of Wild Oats, Wild Rye, Wheat-grass, Winter-grass, Gamma-grass, Bermuda-grass, Colorado-grass, Mesquite-grass, make most excellent pastures for cattle, horses, sheep, and swine. Some of these grasses promise to make the very best herbage for permanent pastures. The Mesquite-grass is said to be fully equal to the Blue-grass for permanent grazing. The Winter-grass has no superior for winter pastures in the prairie regions. In Southern Missouri, Arkansas, Texas, and Louisiana, cane-brakes fenced in and protected, make the best winter pastures, and may doubtless be made permanent by proper management.

But as to what are the best plants for pastures, and what the best culture for them, are still open questions for the South-west, and it is expected future experiments will lead to much-needed improvement in this department of husbandry. As the country settles up, this question of herbage for the vast quantities of stock will assume more and more importance, and force upon us a more improved system of pasture culture. Fully two-thirds of all the food consumed by the cattle, horses, mules, sheep, and goats, and fully one-half of that eaten by swine, is obtained by grazing; and no other mode of feeding, now known, can be substituted for the cheap production of meat and work stock.

A Pernicious Weed—Bind-Weed.

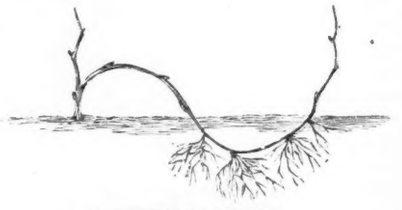
Some weeds are so unattractive in appearance, that they are at once regarded with suspicion and exterminated. But with weeds, we cannot always judge by appearances; some are pleasing in foliage, and even beautiful in flower, while their root is working unseen mischief. The Bind-weed (*Convolvulus arvensis*), as our engraving, of nearly the natural size, shows, is a miniature Morning-glory, and also a really handsome little plant. It has long been known in England as one of the most troublesome weeds. It was mentioned in "American Weeds and Useful Plants" (1859), as a plant from which trouble might be expected. The anticipated trouble has now begun; within a short time we have had complaints from a farmer in Connecticut that it is in his meadows; we have heard of it on the banks of the Hudson, and one of the editors of the *American Agriculturist* has discovered that in setting a new strawberry bed, he also introduced this with his strawberry plants. At the police head-quarters, when they catch a suspected person, he is made to sit for his portrait, and if unable to prove anything against him, they let him go, and his picture goes into the "Rogue's Gallery" for future reference. We can prove something against this plant, but we give its portrait in order that it may be recognized on its *first appearance*. Herein consists the most important part of the fight with weeds: Knowing the enemy at first sight, and attacking at once, while in a weak condition, and preventing its spread. The first thing to be done, when the Bind-weed is recognized, as it surely will be when it flowers, is to prevent any of those flowers from producing seeds—cut and burn, and one source of mischief will be stopped. Then the established plant is to be attacked, and we should say that its stems, 3 feet or more long, run upon whatever plants may be near, and by twining around grain, etc., gets the name, Bind-weed; in England it is also called "Corn-bind" and "With-wind." It is amusing to read some of the accounts of this plant written in England half a century ago, apparently to show that it cannot be exterminated. Now we do not believe that there is a plant, or ever will be one, which, by thorough, frequent and persistent cutting, may not be exterminated. The trouble is, that the work is but half done. We have positive knowledge of the successful fighting of a vastly worse weed than this—but the fight was earnest. If this weed appears, and is established, cut it once a week—every day—every hour—or—as often as may be needed to keep down *all* stem and leaf growth, if it requires a man to stand over it all the time, and the plant *must* die. There can be no increase of the plant without leaves; keep off the leaves. It takes longer to subdue some plants than others, but *it will succeed* just as certainly as a garrison may in time be starved out, by cutting off all supplies from without. With plants the supply can only come from the leaves.

THE BIND-WEED (*Convolvulus arvensis*).

More Feed Wanted for Cows.—It is reported of that extraordinary milker, "The Queen of Barnet," that she made 746 pounds of butter in a year, and that her daily rations were four quarts of bran, four quarts of ground oats, three quarts of corn meal, eight quarts of carrots, and all the good hay she could eat. The yield of butter is at least four times the average of good dairy herds, who have merely good hay in winter, and good pasture in summer. What is extra in the feed of this cow, is the bran, oat meal, corn meal, and carrots, worth on the farm where they are raised, about 20 cents daily. This extra feed for a year is not far from $73. The extra amount of butter would be 560 lbs., worth at one-third of a dollar a pound, $186. Deducting cost of extra feed, $73, it would leave $113, as the profit of high feeding. Very few cows on our farms are full fed, especially in winter, and the impression is so general, that it will not pay to do it, that it is very difficult to get farmers to make experiments in this direction. Steel-yards are cheap, and the rations above noticed are within the reach of most dairy farmers. Try the experiment of extra feed on one of your best butter cows, and see the result.

Layering the Grape-Vine.

While many varieties of the grape will grow readily from cuttings planted in the open ground, others need to be placed in a propagating house, where they can have bottom heat, and a few varieties can hardly be grown from cuttings at all, but must be layered. Layering consists in burying a portion of a cane in the soil, in order that it may strike root while it is yet attached to the parent vine; when a sufficient number of roots have formed, it is cut away from the old vine and set out as an independent plant. This method is of necessity employed by the nurseryman for those varieties that will not readily grow from cuttings, and it offers to the amateur the most certain means for the propagation of all vines, as he does not care to multiply them in large numbers. The best method of layering is to use in early spring a cane that grew and ripened the previous season; but the time for this has now gone by, and if one has a vine from which he wishes to obtain a new plant or two, he can do it by layering the shoots of the present season's growth. The shoots for this purpose should be those which start near the base of the vine, which have been allowed to grow for the purpose. They will usually be hard enough by mid-summer, for if layered when too soft and green, they might decay. Having ascertained, by extending the shoot, the best place for burying a portion of it, dig a hole with the spade, and carefully bend the shoot, in order that a part of it may be buried to the depth of six inches or more, cutting away all the leaves from the buried portion. Press the earth firmly down over the stem, and tie the portion which extends above ground to a stake. It is well to put a mulch of some kind over the layered portion; litter will answer, but there is nothing more effective to retain the moisture than a few flat stones. Usually abundant roots will be formed by autumn, when the new plant may be severed from the old one, or it may be left until early the following spring. The engraving shows the layer in autumn, after the leaves have fallen. In severing the new plant from the old one, take care to cut it in such a manner as to leave all the roots attached to the layer. Layering allows one to readily propagate a large variety of plants. The grape-vine roots so readily that it is not necessary to "tongue" it, in order to induce roots to form,



A GRAPE-VINE LAYERED.

but with hard-wooded shrubs generally, it is necessary to cut the layered portion about half-way through, with a long sloping cut, to form what is called a tongue, and this is best done on the upper side of the layer, instead of on the lower, as is usually advised.

The Culture of Saffron and other Drugs.

Every now and then there is an excitement concerning unusual crops—the "Multicaulis craze" on a small scale over again. Many of our readers may recollect the "Coffee plant," which was to allow every farmer to grow his own coffee, and have an abundance to sell. No doubt the one who sold the seeds of the Chick Pea at a large price for a small packet, found the "Coffee plant" profitable. Where is it now? About a dozen years ago excitement prevailed all along the line over Opium culture. A person in Vermont had raised the poppy, and collected Opium. The same man sent a sample of opium to a Philadelphia chemist, who certified that the sample contained even more Morphia than the best imported opium, and many were the inquiries from those who would at once go into poppy growing, and opium gathering. Sometimes the best cure for such a craze is, not to oppose it, but to give the details of the particular culture. Of course, the production of opium here and there in a small way, was no new thing, and knowing that one of our friends in Wisconsin had been successful in it, he at our request gave the process in full, from sowing the poppy, to collecting the minute yield. Every necessary step was given, and every operation that he described was necessary to success. Probably every farmer who read these clearly described details, was at once cured of all desire to cultivate opium. So far as we are aware, the only one who made any money out of opium culture was the Vermont man, who sold seeds of the "Genuine Opium Poppy," (kept at all seed stores), and a book of directions.

Just now there are inquiries about Saffron. Some one has ascertained that the wholesale price of Saffron is $15 or more per pound. He knows that the plant will grow in this country, for 50 years ago his grand-mother

THE SAFFLOWER (*Carthamus tinctorius*).

used to have it in her garden, and collected the Saffron. Now he would know where the seeds can be had, about the cultivation, etc. It is quite likely that an article has appeared in some paper, setting forth the probable profits of Saffron culture. Though we have not yet seen it, but these unusual inquiries are generally to be traced to such a source. Saffron *is* worth $15 per pound, and our inquirer is right in the fact that his grand-mother used to collect saffron. But *this* Saffron, is not *that* Saffron. There is Saffron and Saffron, the one being $15, and the other $0.50 per lb.

The plant to which the correspondent refers, though usually called Saffron, is more properly Safflower. Its botanical name is *Carthamus tinctorius*. It is closely related to the Thistles, and may be described as a thistle-like plant, a foot or two high, with smooth, but prickly leaves, and heads of dark orange-colored flowers. It is an annual, and its seeds may be had at the seed-stores. The plant has been cultivated in Eastern countries so long, that its native place is unknown. Formerly it was used in immense quantities as a dye, and the commerce in it has been large. A few generations ago it was usual to devote a part of the garden to those medicinal plants in common use, and Safflower had a place with Balm, Rosemary, Rue, and others, which were duly cut, and hung in the garret to dry, for use "in case of sickness." Who does not remember the odor of the old garret? As to the Safflower, or "Saffron," the flowers were pulled from the heads, dried, and put away in papers. They are not regarded as having any medicinal qualities, but some years ago a family was regarded as poorly prepared for measles without them. So much for that "Saffron." The other, or *real* Saffron, is a peculiar product, and is obtained from a species of Crocus (*C. sativus*), which, as the engraving shows, is much like the common spring crocuses of the garden, but it blooms in autumn. It is supposed to be a native of Asia Minor, but has become naturalized in most European countries; it is sometimes seen in cultivation in our gardens. Like other crocuses, this has a long style, the ovary being down below ground, and divides at the top to form three stigmas, as shown separate in the engraving. It is this part which forms the true Saffron. The flowers are gathered in the morning, these stigmas separated, and the rest of the flower thrown away; they are dried on paper, and sent to market loose, or are pressed to form cakes. It has been found that it takes 4,320 flowers to yield stigmas enough to make one *ounce* of Saffron—of course 16 times as many to make a pound, and our inquiring friend may consider, whether, if he had the plants all cultivated to his hand, he could afford to do the collecting of these stigmas even at what seems to be the high price of $15 per lb.

One may say of the true Saffron, that while in early times it was supposed to have valuable medicinal properties, it is now used only for coloring and flavoring some medicinal compounds, and for this purpose the demand is much less than formerly. We gladly enough encourage every culture that promises profitable results, but there are many, like that of Opium and Saffron, that we know must end in failure, whatever may be the price of the product, and we feel that we do our readers a good service in showing them the facts upon which our belief is founded.

THE TRUE SAFFRON (*Crocus sativus*).

Planting the Celery.

Probably no gardening operation has been more thoroughly revolutionized within a few years than the growing of Celery. Some fifteen years ago, Celery was a rarity in the family garden; it was supposed to take so much labor in the making and proper manuring of trenches, that few besides the wealthy, who could afford a "gardener," undertook its culture. Now, especially owing to the teachings of the *American Agriculturist*, it is found that it is quite as easy to grow Celery as it is to grow cabbages, and the method which has been found practicable in market gardens, is now followed in the private garden. The great step in advance in Celery culture was, to abandon the English method of planting it at the bottom of a trench, and to cultivate the plants upon level ground. The planting in the Northern States is usually done this month. Those who grow Celery largely will have the plants at hand in the seed-bed, but those who cultivate but a small quantity, find it

cheaper to buy the plants, which are offered by seedsmen generally, during the present month. The bed for Celery should be well prepared by spading in an abundance of well-decomposed manure. Market gardeners plant the crop upon land that has been heavily manured for early cabbages, cauliflowers, onions, etc. But whether the manure has been applied for a previous crop or not, the soil should be very rich, and if the manure is now applied, it should be well incorporated with the soil. The plants are set in rows 4 feet apart and 6 inches distant in the rows. The line being stretched, it is to be beaten gently with the spade, in order to leave a mark on the soil to serve as a guide in planting. While cabbage and some other plants should be set deeper than they were in the seed-bed, this is not the case with Celery, which forms no distinct stem, and in transplanting should be set no deeper than it was before. If the transplanting can be done in a moist time, all the better; but if it must be done when the soil is dry, an abundant watering of the plants soon after setting will be of great service. All plants, when transplanted, should have the soil well pressed around the roots. Celery, especially, needs attention to this "firming," as the gardeners term it; if this has been properly done, very few plants will fail; still it is well to have a few plants in reserve, to supply any deficiencies that may occur in the rows. After the Celery is planted, there is nothing to be done to the crop for the next two months except to encourage the growth by frequent hoeing, which will remove such weeds as may start, and keep the soil light and open.

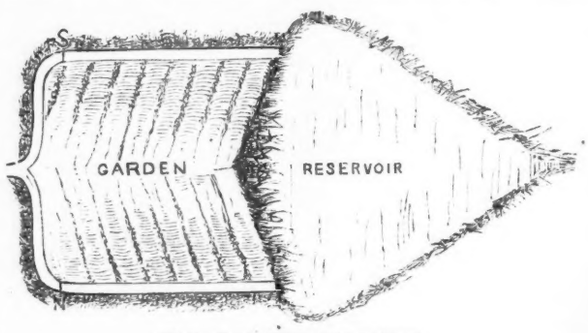
A FINE NARCISSUS (*Narcissus bicolor Horsfaldii*).

A Beautiful Narcissus.

Our flower growers do not, as a general thing, give the attention to the plants classed as "bulbs," that they deserve. They purchase of the dealers in autumn, Hyacinths, Jonquils, Narcissus, etc., without much regard to the kinds. The genus Narcissus, for example, in its several species and hybrids, offers a great variety of beautiful flowers, and is worthy of special attention. Some of them make charming plants for forcing. What for example can be more pleasing as a green-house decoration, than the old, though by no means common, Hoop-petticoat Narcissus (*Narcissus bulbocodium*)? A pot containing half a dozen of these little bulbs, makes a bright spot in the green-house, and one that retains its beauty for a long time. It is also excellent as a window plant; the bulbs are to be potted and kept in the cellar, until they form abundant roots; they may then be brought into the warmest and lightest place in the window, and will soon show their bright and delicate flowers. Among the species of Narcissus, the two colored (*N. bicolor*), has long been a favorite, and within a few years, a variety called *Horsfaldii*, has been introduced, which is far superior to the old form in size and coloring. Having procured some bulbs last autumn, on account of the great praise given it in the European journals, we awaited its blooming this spring with no little interest, and were not disappointed. The flower is really fine; the engraving from one of these, shows the large size of its crown. The petals are of a rich creamy white, while the large and handsomely fringed or scollopped crown, is what may be termed a bright lemon-color. We have no doubt that this fine variety of Narcissus will be a splendid plant for forcing, the large size of its flower especially commending it for this purpose. The foliage is ample, but there is nothing peculiar about it.

Irrigation in the Garden.

Every one who has thought about the matter, is aware that the great necessity of our horticulture is irrigation. What fruit growers and vegetable raisers need more than anything else, is to be insured against loss from the severe drouths which, in our uncertain climate, may ruin their crops outright, or so diminish them that they are unprofitable. Every strawberry grower of experience has known seasons in which adequate watering at the right time would have given him an abundant crop. The saving of a single crop of strawberries will often warrant a considerable outlay for irrigating improvements, which, when once made, will last for many years. In those States where an annual drouth may be depended upon, irrigation is accepted as a matter of course, and is provided for. We have no doubt that, in the near future, irrigation will be regarded as a necessity in profitable gardening in all parts of the country, and those who soonest adopt it will reap the greatest profit. In selecting a new location for a market or a fruit garden, the possibilities of irrigating it should be considered. In most established gardens, some method may be found for the introduction of water, either from a stream not far distant, or by establishing artificial reservoirs. As an example of what may be done, we give the experience of A. D. Lee, Linn Co., Kansas, with a plan from a sketch sent by him. Mr. L. says: "In order to procure water for our stock, we built a dam across a little valley which drains a pasture of about ten acres. White willows were planted to support the dam or embankment. The reservoir covers about half an acre; the water, which is about ten feet deep, remains perfectly clear all summer, and is well stocked with fish. Our garden, of about an acre of rich loam, is located just below the dam. Two canals, *N* and *S*, are provided to carry off the water in case of an overflow. By means of little gates at *N* and *S*, these canals can at any time be filled with water, which may be guided between the rows as needed. The sketch shows the arrangement at a glance. This garden, last summer, fairly laughed at the drouth, which completely destroyed the garden crops in the county—such lettuce, peas, beans, cabbages, etc.! We went into winter quarters with the most luxuriant strawberry-bed I ever saw in any State, while the plants of our neighbors were nearly all destroyed by the drouth. I would not try to have a garden again without water." The experience of Mr. Lee accords with that of all who have irrigated their gardens. Of course the great point is a supply of water; and while all places will not allow of the construction of a reservoir like this, such localities are more common than is generally supposed. In the absence of other supply of water, it may be raised from a well by a pump operated by a windmill, and stored in a wooden tank or in a cemented cistern, made in elevated ground. In irrigation an abundant supply of water is given, and the soil moistened to a great depth. The nourishment thus given to the plants is not the only advantage to be derived from this method. Many of our most destructive insects pass a portion of their existence either in the larval or chrysalis state in the soil; its saturation by irrigation is one of the most effective means of destroying them, and this of itself would go far to pay the cost of arranging means of irrigation.



PLAN OF AN IRRIGATED GARDEN.

Insect Enemies of the Currant and Gooseberry.

Few are aware of the importance of the Currant and Gooseberry crop. In some localities, not far from New York City, notably in Connecticut in one direction, and on the banks of the Hudson in another, large areas are devoted to these berries, especially to the Currant. The Gooseberry, always of some of the native kinds, is marketed green, while the Currant, to some extent, marketed unripe, is generally offered in the ripe, or fairly colored state. The grower of the Currant has a great advantage over those who send the Strawberry and Raspberry to market, in the fact that the fruit is not readily perishable; if not sold to-day, it may be to-morrow, and will keep, if need be, for several days. In some neighborhoods in Connecticut, the Currant has for many years been an important crop. As is usually the case, when a plant is grown largely in a locality, various insects find it out, and success in Currant culture largely depends upon a successful war against insects. Growers talk about *the* Currant-worm, while entomologists recognize several, at least three, which attack the crop, either one of which may be destructive in eastern or western localities. One of these insects, which, as it prefers the Gooseberry to the Currant, though it often attacks the latter, is the Gooseberry Span-worm (*Eufitchia ribearia*). This worm is the larval state of a small native moth. It was thought by Dr. Fitch, who first noticed it, to belong to the same genus with the European insect, and he described it as a species of the same genus (*Abraxas*); but Dr. Packard, finding that it belonged to a different genus, has described it anew, and named it, in honor of its discoverer, *Eufitchia ribearia*. It differs from all other insects upon our Currants and Gooseberries, in being what is known as a "Measuring" or "Span-worm," on account of its method of travelling by loops. When the worm is alarmed, it at once lets itself down by a thread, and hangs thus for awhile. This habit may be taken advantage of to destroy it while the worms are still young; the bushes may be jarred by means of a forked stick, and the stick may be used to pass along just above the suspended worms, to bring them to the ground, where they may be crushed. This insect is a native, and the pupa as well as the moth and the larva are shown in fig. 1.

Fig. 1.—THE GOOSEBERRY SPAN-WORM (*Eufitchia ribearia*).

When *the* Currant-worm is mentioned in the Eastern States, probably the Imported Currant-worm is referred to, as it is this which has proved to be the most serious pest to the Eastern Currant grower. It does its mischief in the larval or "worm" state, but the perfect insect, instead of being, as in the preceding, a moth, is a Saw-fly. The perfect insect is shown in fig. 2; the male, *a*, being much smaller, as well as unlike in appearance to the female, *b*. The larva is shown in fig. 3, *b* representing the characteristic dots upon one of the rings, much enlarged. The eggs of this are laid by the insect, which comes out of the ground in early spring, upon the underside of the lowermost leaves of the bush, usually near the larger veins. The young worms, as soon as hatched, feed upon the leaves, riddling them with holes, and when full grown and about three-quarters of an inch long, drop to the ground, and under the fallen leaves, or just below the surface, they form cocoons, from which, in the course of a few weeks, the perfect insects appear, usually early in July, to lay eggs and repeat the same destructive round. Their second brood enters the pupa state, and remains in this condition until the following spring. This insect, when it has established itself, is most destructive, and were it not for an effective remedy, Currant culture would be almost impossible. Fortunately there is for this Currant-worm, and for all others that prey upon the leaves of the plants, a most efficient remedy in powdered White Hellebore. Some journals have mentioned the use of Hellebore, without specifying the kind. *White* Hellebore (*Veratrum album*) is the kind, and not Black Hellebore (*Helleborus niger*), which is a very different plant, and can not be substituted for the White. As poisoning the Colorado-beetle has become a regular part of potato culture, so the poisoning of the Currant-worms must be a regular thing in Currant and Gooseberry culture. It is a very common sight to see Currant bushes denuded of every leaf, and the half-grown fruit drying upon the naked bushes. This could have been prevented, no matter by which of several insects it was caused, by the timely use of White Hellebore. The powder, as sold at the drug stores, is greenish-yellow, and if accidentally taken into the nostrils, causes the most violent sneezing. Some advise the dusting of the powder upon the leaves, but this, aside from the inconvenience caused by its entering the nostrils, is not the best way to employ it. For several years we have used the following: Place a heaping tablespoonful of the powder in a bowl or basin that will hold a quart or more; gradually add to this, boiling water, stirring constantly until every particle of the powder is thoroughly wetted, gradually adding more water, and stirring until a quart or so has been added; turn this into a pailful of cold water, stir well, and apply to the bushes. The application may be made with any kind of garden engine or syringe,

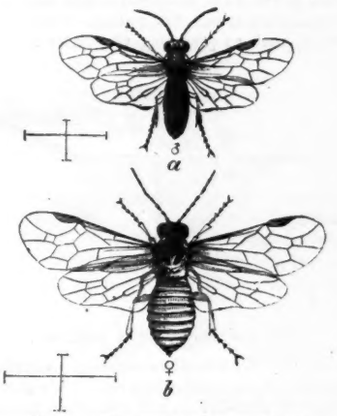


Fig. 2.—THE CURRANT WORM FLY.

or even with a watering-pot, the object being to thoroughly wet the leaves. If at the end of a week or less any worms are found to have escaped, a second application must be made. Rarely are more than two applications needed; if a second brood appears, it should be treated in the same manner. But, "Is not Hellebore poisonous?" will be asked. It is poisonous, but there is no danger from this use of it. The rains will wash off all that may adhere to the berries; if there have been no rains, any of the powder adhering to the berries will be seen, and in preparing the currants for the table, such fruit will be rejected as soiled.

Besides the insects that attack the leaves, there is a borer, also imported, which injures the stem. The parent insect, of the same genus as the Peach-borer, lays her eggs singly near a bud, and the young larva makes its way directly to the center of the stem, feeding on its pith and causing much injury. The diminished growth will show that there is trouble, even if the weakened stem does not break away. In the fall pruning, all such stems may be readily detected, and should be cut off and burned. Some advise growing the currant bush in the form of a tree, with a single stem. Were it not for the borer it would be advisable to adopt this manner of training. When there is but one stem, the borer is quite sure to attack it sooner or later, and make an end of the plant.

Fig. 3.—THE IMPORTED CURRANT WORM.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Folding Table for Porch.

Last summer we found our folding table on the kitchen porch, even more convenient than we anticipated when it was first put up. Various kinds of work, such as preparing vegetables and fruit,

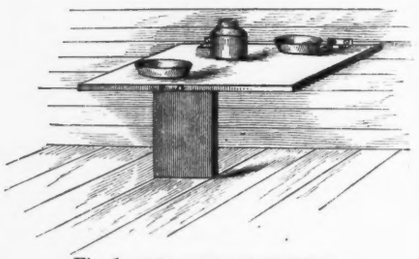


Fig. 1.—THE TABLE IN POSITION.

ironing, and the sometimes necessary scouring of tin things, can be done as well on a shady protected porch, as in the kitchen, and with much more comfort, for it affords a pleasant retreat from the heat of the indispensable cooking stove. The table (fig. 1) is made of pine, 3 feet long, by 2½ feet wide. The top is firmly fastened to the wall by two strong hinges. The support in front is nearly a foot wide, fastened on with a large hinge, so when the table is in use, it is under the top, and even with the front edge. When not in use, the table is hooked up against the house wall, as shown in figure 2, and is entirely out of the way. Such a table might also be found very convenient in a small kitchen, as it could be let down when any extra work required a second table, and be easily put back when not required. Any one who has not yet the desirable addition of a back porch to the house, will find a folding table put up against the side of the house near the kitchen door, if on the shaded side, very useful in pleasant weather.

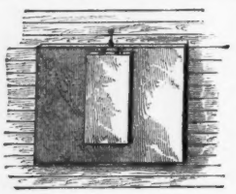


Fig. 2.—THE TABLE FOLDED.

A Drink for the Harvest Field.

One who travels in the sparsely settled portions of Northern Mexico, is quite sure to make the acquaintance of *Pinole* (pronounced *Pee-no-lee*). Those who go on long journeys on horseback, and herders of cattle, who may be weeks absent from their homes, are sure to have a supply of Pinole. It forms one of the principal rations of the Mexican soldiers on the frontier. The chief business of these is fighting Indians; they have no baggage-wagons, but each soldier carries his rations for many days upon his horse, and these are mainly sun-dried beef and Pinole. Having often found Pinole most acceptable on a long journey, it has occurred to us that it would be an excellent thing in the harvest field, or wherever a refreshing drink was required by those who need food rather than stimulants. It is often advised to use in the harvest field oat-meal stirred in water, and this is no doubt good, but Pinole is better. But let us state what Pinole is. Indian corn is parched, not popped, but thoroughly roasted quite through, and in doing this it should be carefully stirred, so that it will become equally and but slightly browned. This is then ground about as fine as Indian-meal, and mixed with sufficient sugar to suit the taste. It is usually flavored with cinnamon or other spices. When a tablespoonful of this Pinole is stirred in a cup of cold water, it is not only acceptable to the taste, but is really nutritious, and one can travel for a long time upon this alone. The corn is thoroughly cooked, and is as useful a food as if made into bread. It is usually employed in this manner as a drink, but we have known it to be merely moistened, to make a sort of pudding, and eaten in that manner. One of the finest exhibitions of hospitality we ever met with was on the Mexican frontier. Seeing a cattle herder's hut, we rode up to inquire the way; the occupants of the hut, an old man and his old wife, were at dinner. They were squatted on the ground floor of the hut; their table service consisted solely of a gourd shell, in which some Pinole had been moistened, to make a sort of hasty pudding. There were no spoons, but they made use of their fingers, making alternate "grabs" at the moistened Pinole, and conveying it to their mouths. This was their whole meal, as it had been for several days, yet the heartiness with which we were asked to dismount and partake of the best they had, was most charming, and made an impression that many years has not removed. The experiment with Pinole can be easily tried. Corn should be slowly and carefully parched; it may then be ground in a clean coffee-mill, if no other mill is at hand. We do not know the proportion of sugar, but that may be easily learned by experiment, and the same may be said of the spices. Pinole has the advantage over oat-meal used in making a drink, in the fact that it is thoroughly cooked and the more readily digestible.

Preserving Ice.

We are frequently asked to give directions for constructing a refrigerator for family use. Several of the refrigerators offered for sale are constructed upon correct principles, and are very economical in the use of ice. A home-made ice-box will answer every purpose. In constructing an ice-box, the first point is to shut out heat from without. To do this the box must be double, and the space between the outer and the inner box filled with some non-conducting material; this may be sawdust, charcoal, dry tan-bark, or any similar substance, and this material must be kept dry. Here comes the chief difficulty in making a home-made refrigerator: the inner box must be water-tight, and consequently lined with metal; zinc is the best. The size of the inner box having been fixed upon, make an outer box about four inches larger each way. The inner box should be lined with sheet-zinc, and have in the bottom an opening an inch in diameter, to which should be soldered a tube of the same material, 6 inches long, to carry off the drip from the melted ice. Two pieces of scantling should be placed on the bottom of the outer box, to hold the weight of the inner one, and prevent it from pressing upon the sawdust or other filling. A piece of coarse sponge placed in the tube at the bottom of the inner box, will allow the water to pass out, and prevent the warm air from entering. There should, of course, be ledges soldered at convenient places to the zinc lining, to allow of light wooden racks to be placed here and there, to hold the food and other articles. The

A HOME-MADE REFRIGERATOR.

best refrigerators, arranged for the most economical use of ice, have a place for the ice at the top, but in a home-made affair, the ice may be placed in a large lump at the bottom. In using an ice-chest, care must be taken to introduce no articles that by their strong odor will injure butter, cream, or milk, if these are placed within it. Fish and meats will give an unpleasant flavor to butter. Where ice is plenty, a temporary refrigerator for such strong-smelling articles can be made by the use of a box or barrel, placing in it a lump of ice wrapped in a piece of carpet or a blanket, and putting in the articles by its side.

Canning Fruits and Vegetables.

American housekeepers are not aware of the great advantages they enjoy over their European cousins in the matter of canning. It is not many years since the representative of one of the leading London Journals, who was on a visit to this country, found this one of the most interesting things that he noticed on his trip. Wherever he went he found the ladies of the household engaged in canning fruit—a thing then unknown in England. At his request we wrote an account of the matter in detail, which was published in his journal. The American housekeeper accepts canning as a part of the regular household routine, and it in a great measure takes the place of the old "preserving" time. To successfully put up fruits and vegetables, the great essential is glass jars, or cans, that are readily made air-tight. These are now supplied by manufacturers, several patterns of them, in a form so complete that there is little practical difference among them. The jars of the leading makers of the present day are well nigh perfect, and we do not know of any choice between them.

Having the cans, or jars, the operation is simple. The fruit, whatever it may be, in a syrup just strong enough to properly sweeten it, is brought to the boiling point, and when the air has all been expelled from it, it is at once placed in the jars, previously warmed with hot water, and when these are well-filled, the cover is screwed down tight. Good jars, well filled with boiling fruit, and promptly covered by screwing down the caps, will insure success. Many years ago, when canning was not so general as it is now, we showed how any common wide-mouthed bottle could be used, but at present, jars made for the purpose are so cheap, that it is not necessary to resort to any make-shifts. Among the first things to be put up in this manner is Rhubarb. This, as shown in April last, p. 163, can be readily canned, and green Gooseberries may be treated in the same manner. Strawberries and Raspberries come next, and are better preserved in the same manner than by any other, but these, especially the Strawberry, while vastly better when preserved thus than in any other manner, come far short of retaining their original flavor. Peaches are easily preserved thus, and are nearly perfect, as are pears, especially the Bartlett, apples and quinces. One who has put up the quince in this manner, will never preserve it according to the old pound for pound method. All the highly flavored apples, preserved by canning, make a finer apple sauce than can be produced in any other manner. The usual process is, to cook the fruit, of whatever kind, in a syrup made with four ounces of sugar, to a pint of water. When the fruit is cooked tender, transfer it at once to the jar, and add the syrup to fill up every crevice, if there are bubbles of air, aid them to escape, by the use of a spoon; see that the jar is solid full of fruit and syrup, and up to the top, before the cap is screwed on. While fruits are easily preserved in the family, vegetables are more difficult. We have many inquiries about preserving green peas, green corn, and tomatoes. Those who make a business of canning, find green peas and green corn among the most difficult things to preserve. They can only be put up in tin cans by long boiling processes, not practicable in families. If any of our readers have found a method by which either corn or peas can be preserved by any process practicable in the family, we ask them to communicate it, for the benefit of others. Last autumn we made an experiment with tomatoes. Thoroughly ripe fruit was cooked as for the table, omitting butter and all other seasoning, and put up in ordinary fruit jars. About 3 out of 12 failed, but those which succeeded were vastly better than the tomatoes purchased in tin cans.

Sleeping Accommodations.

Cleanliness is the great essential. Our life is passive during the hours of sleep, but our breathing goes on constantly, and the demand for pure air in sleeping rooms is very important. There should always be communication with the outside air, and in warm weather, the doors and windows may all be wide open. If currents of air can sweep through the rooms in the day time (or in the night without endangering the sleepers), so much the better. The bad air that originates in sleeping rooms—the waste substance that escapes from human bodies, by the lungs and skin—settles and clings about the carpets, curtains, bedding and clothing, tainting them with decomposing, and it may be, poisonous matter, unless a constant cleansing process is carried on by plentiful airing, and the action of light, especially sunshine. The room should contain as little drapery as possible. Rugs are better than carpets, and no heavy curtains should be used. The bed should not be made up after using, until the bedding has been well aired, and the more it can be exposed to bright sunshine, and out-door breezes, the better. The room should be kept as free as possible from all odors. The night clothing should be well aired during the day, and all the day clothing be placed at night where it will get aired before it is again worn.

Sleeping rooms are often much crowded. It would be well, could each, when old enough, have a private room and a clean bed apiece. A great gain in health would result from this arrangement. In our present state of poverty, we can only insist that no more than two ought to occupy the same bed. It is an outrage on infancy to wedge a baby in between two grown-up people. Much injury is done to the health and to the morals of children, by the crowded sleeping arrangements in families. The practice is now becoming quite common among careful people, where there are several young children, for the parents to divide the care of the little ones, the mother taking the youngest in her bed, and the father attending to the next to the youngest, and to others if there is need. It seems a pity that the man of the house should be broken of his rest, but it is quite as bad a thing to have the children's mother made sick and nervous from lack of sleep, and excess of care. With attention to the laws of health, especially in regard to food and air, there need be little suffering from broken rest, as healthy children sleep soundly and quietly, and need little care.

A Neat and Handy Catch-All.

This little Catch-all is to be hung in a sitting-room or bed-room, to hold the little trimmings and scraps of waste paper, which make such an untidy

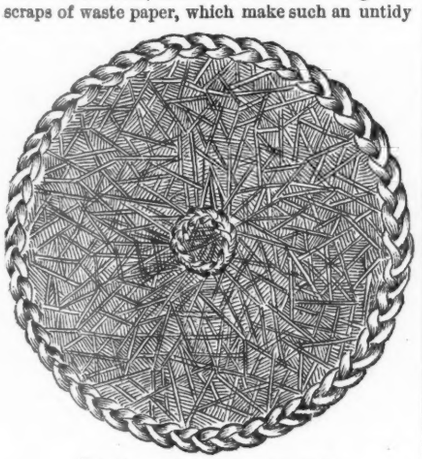


Fig. 1.—ONE OF THE "RINGS."

litter if left around loose. The rings are crocheted from wrapping cord, and the bag is made of blue or red cashmere. For the rings, first make four chain stitches, join, and over these make fifteen stitches in double crochet (see fig. 1); each ring is made separately, and when fifteen are finished, they are sewed together with strong thread, so that the stitches do not show on the right side, in the shape shown in figure 2. A similar half diamond is made for the other side. Cut of pasteboard two pieces, the size of the rings after being sewed together, and cover each on both sides with cashmere. To these pieces sew a puff

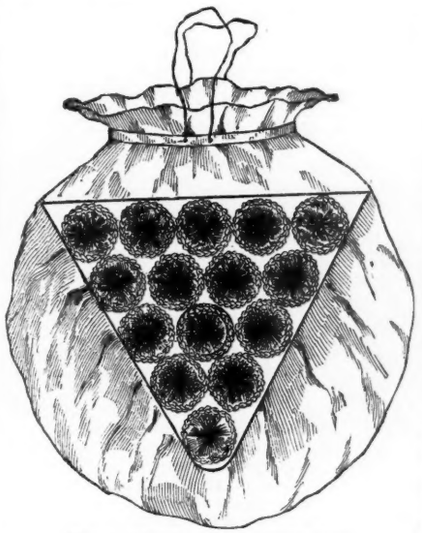


Fig. 2.—THE CATCH-ALL COMPLETE.

four inches wide, and long enough to allow for gathering. A piece of the cashmere, five inches wide, is sewed around the top. The upper edge is turned down to make a hem an inch deep. A second row of stitching is put an eighth of an inch above the first, to make a casing in which is run a colored cord for a draw string. The bag is hung up by the cord which is knotted together, and the knot drawn into the casing. O. Y. Y.

Juvenile Love Affairs.

BY FAITH ROCHESTER.

Yesterday afternoon a young girl aged fifteen, coming out from a public school near here, was confronted by her jealous lover aged sixteen, who attempted to shoot her, because he thought she liked some other boy better than himself. Failing in this attempt, he blew out his own brains. In this morning's paper, I find a similar story told of an equally youthful couple in some southern city. It strikes me that "Juvenile Love Affairs" is a very practical subject for parents to consider. There is some great lack in early home training, back of follies and crimes like these. Foolish reading has much to do with these failures, and for that, parents and teachers are responsible. They should cultivate in children a taste for good reading, and then carefully supply the demand.

Those who leave this important part of education to chance, can have no reasonable hope that their children will escape serious harm and disgrace. Children whose minds are fed habitually upon stories, get a weak mental digestion, and have no inclination for instructive books. From childish stories of a sensational kind, they go naturally to novels, and poor novels are very much more abundant than good ones. It seems to me really best that no novels at all should be read by boys and girls under sixteen. Webster defines the word novel, as I use it here: "A fictitious tale or narrative, intended to exhibit the operation of the passions, and particularly of love." There are fictitious stories of considerable length, that can not properly be called novels. Who would apply that name to the "Rolla" books, the "Prudy" series, or to Miss. Edgeworth's and Miss. Olcott's Juvenile books? "Love stories about murder," defines popularly the class objected to.

A parent who has to *forbid* novels to his or her children has reason to feel ashamed, for it implies a previous failure of duty. The first duty is to see that a taste for wholesome reading is developed in the child. Read to it when very young, interesting facts of natural science or history. A very little at a time, made very simple and plain, and given if possible when the mind craves food—when the child asks "Why?" or "How?" I often wonder whether the readers of the *American Agriculturist* appreciate the value of the "Doctor's Talks." It is hardly possible to say too much in their praise. Most writers for children go on the supposition that all facts must be rolled in a sugar coating of fancy (or fairy stuff), to be acceptable to the young, but my own experience leads to a different belief.

But *good* stories have their use, and I have often searched for them, feeling serious need of their help in training my children. This is the help I wish them to render; to aid in developing moral character, in raising one's standard of manners, serving as a sort of antidote for the effects of unavoidable association with persons of poor breeding, or low moral tone. Good biography is still better. If good juvenile stories lead on naturally to a moderate use of the best class of fiction, there is no necessity for prohibition. Novel-reading usually has a weakening rather than an elevating effect upon character, and love stories stimulate an unhealthy sensationalism.

Are children to be kept in ignorance concerning the "grand passion?" I hope not. I hope they will learn something of it in the most natural and wholesome way—as exemplified in the life of their parents; not in any silly ostentatious manner, but in the genuine regard shown by each for the other's happiness. Children should never hear love spoken of as a light matter, but they should grow up with a realization that the proper choice of a husband or wife, is something that demands the full exercise of the reason and practical judgment, as well as the warm sanction of the heart. They should be taught, by the habitual judgment of their parents and friends, when such matters are talked about, that a choice "for better or for worse," of a life companion, demands the exercise of mature powers, and can not properly be made in school days.

"In school days!" That brings to mind the sweet story told by our bachelor poet, Whittier. Indeed I was just going to mention this genuine little love affair, or warm friendship of children. Hardly any warm-hearted boy or girl escapes some experience (usually brief), of the kind, but the less said about it the better. If silly people do not meddle, and if the boy or girl makes mamma a judicious confidant, no harm is done. Often the dream is unduly broken, sometimes the fascination developes into a pleasant lasting friendship, and occasionally it grows gradually into the happy love of a life-time. I have had sweet artless confessions made to me by very young children. Sympathy should not be withheld on occasion of any frank confidences, but a mutual liking of a little boy and girl, should neither be joked about, nor treated too seriously. Sentimentalism is always unhealthy, and its best antidote, is activity in practical matters. I never like the pairing off of little boys and girls. Let them study and play and work together, and be good faithful friends, if mutually attracted on any reasonable basis of friendship, but beaux and lovers do not belong naturally to childhood and early youth. Children's parties usually do much more harm than good. The whole Valentine business seems to me decidedly unwholesome, and I am amazed to learn that Valentine boxes have lately been introduced into some of our public schools, on the 14th of February, for the convenience and encouragement of youthful pairs, who wish to exchange those silly (however pretty), tokens of insincere love. I do not believe that sincere and sensible lovers resort to such expressions now-a-days. Another more common custom in our schools has a tendency in the same wrong direction—the choosing by ballot of the handsomest girl for the May Queen. Great growths of vanity and of envy are sometimes the results of this unnecessary performance. As parents and teachers and friends of the coming men and women, let us encourage only those things that tend to promote the various virtues, and to increase true happiness.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

Throughout the summer, and over a large part of the country, there may be found in meadows and pastures, and along the road-sides, a plant of which a portion is shown in fig. 1. The plant is about a foot high, and bears at the top a broad cluster of bright yellow flowers.

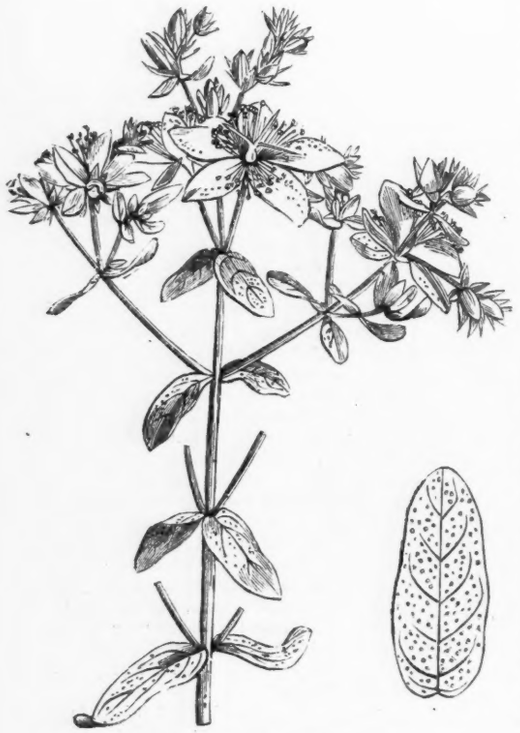


Fig. 1.—A FLOWER CLUSTER OF ST. JOHN'S WORT.

If you ask the farmer about the plant, he will no doubt tell you that it is "St John's Wort," or if he does not happen to know it by name, he will tell you that it is a plant that he would like to get rid of, as it is a weed. It came from Europe, and is now widely scattered, not only in this country, but in Canada. It was given its name in the times when people believed in witches, and this plant was hung at the doors of houses on the eve of St. John's Day (June 24th), to keep away evil spirits. You will recollect that, in May, we started our talks about plants

With the Buttercup.

You can find plenty of Buttercups now, and I wish you to compare that flower with this of the St. John's Wort.

Fig. 2.—PARTS OF A ST. JOHN'S WORT FLOWER.

If the Buttercup itself is not at hand, you can turn to fig. 1, in May, but it is always better to have the real thing, to examine with your own eyes. A drawing, no matter how truthful, shows the flower as it was seen by another person's eyes. Recollect that the Buttercup was shown to have a green, leafy *calyx*, a bright yellow *corolla*, and within these, the most important parts of the flower, are those concerned in producing the seeds, *stamens* and *pistils*.

The Flower of the Pea

was taken to show how the parts of the flower could differ in shape, and while of the same number as in the Buttercup, the flower had a very different appearance. In June, other differences in the flower were shown, and now, in this St. John's Wort, I wish you to notice still others. You find that the flower of this has, like that of the Buttercup, a calyx of 5 sepals, and a corolla of 5 petals, somewhat differently shaped. When you come to the stamens, you find a great difference; while there are many in the Buttercup, and all are separate from one another, the stamens in St. John's Wort are in clusters, stuck together as it were at their lower parts (*filaments*), to form three (rarely five) little bunches. You can see these clusters more distinctly in the flower than in the engraving. Still another difference is to be seen in the center of the flower. The Buttercup has a great many pistils, all separate; in St. John's Wort, there is

But a Single Pistil,

with three spreading styles. If you cut this pistil open, you will find its lower part, or ovary, has three parts, as if it were made by the growing together of three pistils. In figure 2 the parts of the flowers are shown much enlarged; *a* gives the shape of one of the petals; *b* is a flower cut through lengthwise, and shows the interior of the pistil; *c* is a separate cluster of stamens, while *d* is a cross-section of a bud, showing its different parts. We have already made use of the pea, to show the shape of its petals, and I now wish you to look at its stamens. Pull off the petals one by one, carefully, and you will find 10 stamens, with their stalks, filaments, for more than half-way from their lower ends, united to form a sort of sheath or tube, while at their upper ends they are all separate. If you look sharply, you will see that this statement is not quite correct, for *one* stamen is not joined with the rest, and while 9 stamens are joined, one remains separate, as in fig. 3. In other flowers you may find all the stamens joined in various ways. I speak of the different parts of the flower as united or growing together. This does not mean that the stamens were once separate and afterwards grown together, but that parts, in their uses the same, are in some plants separate, and in others united. These differences are no doubt of use to the plant, though we can not always see how. The great charm in studying plants, and animals also, is not merely to find out their names, but to see the same general plan running through a vast number of forms, and to trace out this plan in the most unlike objects. We have heretofore looked especially at the flower; but, while we have St. John's Wort in hand, we will notice something about the leaves. You will observe that in this plant the leaves are in pairs, and *opposite* one another upon the stem, while the leaves upon the stem of the Buttercup are not so placed, but each leaf is by itself, and the next one is higher up, and on the opposite side of the stem, or alternating with one another. The leaves of the Buttercup are (mostly) much *divided* and cut, while those in the St. John's Wort are *entire*, the edges being without any division. If you hold a leaf of the St. John's Wort up to the light, it will appear as if it were pricked with a great many minute holes, as seen in a leaf of the real size at the right of figure 1; these apparent holes are little places containing a minute quantity of an oil, and similar dots are found in many other leaves....I have taken the Buttercup as a

Pattern-flower, or Starting Point

from which you could learn about other flowers. There are some flowers so very unlike the Buttercup that it is at first sight difficult to trace any resemblance—the flowers of the grasses for example. I have met with intelligent persons who, never having thought of the matter, were surprised at being told that grasses had flowers. The grasses (which means all the grains, including Indian Corn, Sorghum and Broom Corn) are certainly those the flowers of which

Every Farmer's Boy and Girl

should wish to know about, for these flowers are the very beginning of their father's prosperity—indeed the source of the wealth of the nation—for are not the grasses and the grains the very foundation of our national success? Let us then try to learn something about these important plants. It may seem difficult at first sight, but as you come nearer to them the difficulties will disappear—at least I will try to make the matter plain. What I said last month about the flowers of the Willow, will help you to understand the flowers of the grasses. If you will look back to last month and review that Talk, you will see that we may part with the corolla of our Buttercup, and still have a good flower; that the calyx may also go, but as long as stamens and pistils were left, the flower would produce seeds; and after all, that, as in the Willow, the stamens and pistils might be reduced in number to one or two, and these even placed in separate flowers. You will recollect that the Willow flowers consist of either two stamens (fig. 2, June) placed in a leafy scale, or a single pistil (fig. 3, June) in a similar scale. The Willow helps you to understand grass flowers, as it shows that the calyx and corolla, the showy parts of the flower, may be absent, small leafy scales serving in their place. To apply this knowledge to grasses let us take one of the most common, as well as one of the most useful of grasses,

3.—STAMENS OF THE PEA.

A head of Timothy.

This at first sight appears to be only a lot of green chaff crowded upon a stem. Now if you gently break off some of this chaff, or carefully take it off with a knife, you will find the separate green bits to be like fig. 4, which is somewhat enlarged. If you have a hand magnifier, or one of the small *American Agriculturist* Microscopes, you can with a little pains separate this and see that it consists of two pieces of chaff, *a*, *b*, and you will find within two much smaller and very delicate parts, *c*,*d*, fig.5. Within these inner parts, if you take the grass at the right time, will be found three stamens, *e*, and a pistil, the two hairy styles of which are shown coming out of *c*, *d*. This is a very simple grass-flower, but all of those which seem more complicated are but repetitions of these. It is convenient to have names for these parts; the outer pair, *a*, *b*, are called *glumes*, and the inner pair, *c*, *d*, are *palets*. The stamens and pistils you learned something about in the Buttercup. In grasses, the stamens are generally three, with large anthers, which are hung by the middle to very long slender *filaments*. There is one pistil with (usually) two long slender, hairy styles. The glumes you will notice lap over one another a little; one is outside of the other, and is known as the *lower*, and the other as the *upper glume*, and the two palets are also lower and upper.

4. PART OF THE GRASS FLOWER.

About Botanical Names.

Some people thoughtlessly ridicule these, and others think them very hard to remember, although they use them daily. Now Botanists give two names to a plant; one shows the kind, or *genus*, to which it belongs, the other the *species*. A genus is a collection of plants that agree in certain points. The Oak genus has many species, but they all agree in certain points, especially in bearing acorns. The species, such as black, white, live, and other oaks, differ in the size and shape of the acorns, of the leaves, and in other matters. In naming the plants, names are used that are recognized all over the civilized world. Thus, *Quercus* is the ancient name for Oak, while the species is indicated by another name following it; the *Quercus alba*, is White-oak, *Quercus virens*, the Live-oak, *alba* and *virens* being Latin names for "white" and "live," or "living." It is very important to have such names, as common names are very uncertain and vary greatly. We use *Geranium*, *Magnolia*, and a host of other botanical names without finding them difficult, because we have no other terms for these plants. Now our St. John's Wort (see Doctor's Talks) is *Hypericum*. The name of the genus, or generic name, is a very old one, used by the ancient Greeks for the plant, and its meaning is not known. But there are many Hypericums, and the one we have been talking about is called *Hypericum perforatum*, because the dots in the leaves make them appear as if they were perforated—or full of little holes. When the meaning of the names is understood, much of the difficulty ceases.

Fig. 5.—FLOWERS OF A GRASS.

Our Puzzle Box.

LETTER ENIGMA.

I'm in the earth but not the sand,
In the water, not the land,
I'm in the men but not the boys,
In the trinkets, not the toys,
I'm in the ocean but not the ship,
In the passage, not the trip,
I'm in the house but not the lot,
In the dinner, not the pot,
I'm in the ore, but not the mint,
In the picture, not the tint,
I'm in the gate but not the latch,
In the garden, not the patch,
I'm in the face but not the hand,
In the table, not the stand,
I'm in the head but not the hair,
In the pretty, not the fair,
I'm in verse but not the song,
In the meeting, not the throng.

MRS. MAYO.

MYTHOLOGICAL ENIGMA.

A nymph of Crete,
An Athenian princess.
One of the nine Muses,
A celebrated god of antiquity,
A deity of the Egyptians,
Certain inferior deities,
One of the Argonauts,
A king of Thrace,
A sign of the zodiac,
A divinity of the Romans,
A queen of Lydia,
A goddess of woods and groves
A famous archer,
The first king of Arcadia,
One of the Oceanides,
A son of Somnus,
One of the Pleiades,
One of the most ancient gods,
A son of Jupiter and Europa,
The goddess of sensual pleasures,
A king of Argos,
A votary of the Muses,
The initials give a line of Cowper.

MRS. MAYO.

ENIGMA.

I am composed of 28 letters:—
My 12, 24, 16, 8, is often seen in a parlor.
My 21, 2, 25, 19, 27, is a residence.
My 1, 11, 26, 13, is the produce of a foreign tree.
My 15, 18, 14, 9, 23, is seen in winter but not in summer.
My 23, 7, 4, 22, 6, 10, 13, is pretty to look at, but painful to handle.
My 5, 17, 3, was the ruin of man.
My 20, 28, is a pronoun.
My whole is an adage suiting the present times.

Answers to Puzzles in the May Number.

PATCHWORK.—1. Mash. 2. Maroon. 3. List. 4. Lie. 5. Lea. 6. Layman.

DISLOCATION.—Where there's a will there's a way.

ALPHABETICAL ARITHMETIC.—204)9,735,154(47,726. *Key*, GREY CLOAKS.

PUZZLE.—LOVE.

NUMERICAL ENIGMAS.—1. Contentment. 2. Patience and Perseverance.

CONCEALED SQUARE WORD.—
T H E M
H O M E
E M M A
M E A N

RHYMING PUZZLE.—
Little Johnny the dancing bears wanted to see,
But said it would cost him a d—i—m—e.

CROSS WORD.—Gingham.

METAGRAM.—Caper, in which may be found: 1. Ape. 2. Carp. 3. Pea. 4. Pear. 5. Rape. 6. Acre. 7, 8. Cap, Cape. 9. Crape. 10. Ear. 11, 12. Pace, Race. 13, 14, 15, 16, 17. Rap, Reap, Pare, Care, Are.

HIDDEN ANIMALS.—1. Tiger. 2. Shrew. 3. Leopard. 4. Mole. 5. Mastiff. 6. Ape. 7. Tapir. 8. Beaver.

TRANSITIONS.—Bare, bate, bite. 2. Sour, pour, poor, poop, prop, drop. 3. Park, part, pert, peat, peal, veal. 4. Curd, cure, core, corn, coin, chin, thin, then, when, whey. 5. Leaf, deaf, delf, dell, well, will, wile, wine, vine. 6. Rail, roil, toil, toll, told, toad, road.

HALF SQUARE.—
F U L T O N
U N I O N
L I E N
T O N
O N
N

ADDITIONS AND TRANSPOSITIONS.
1. Chips — Physic. 2. Lap—Opal. 3. Noon—Onion. 4. Bear—Sabre.

ILLUSTRATED REBUS, No. 490. — Little minds are caught with trifles.

Illustrated Rebus 491.—Hidden words for all to study out and reflect upon.

The Owl Family at Home.

"Birds of a feather flock together," but young birds that are not old enough to have feathers are often inclined to get away from each other. The artist has given us here an inside view of the interior life of a family of pretty brown owls. The father and mother owl have, with great care, brought the family of little owls to that time in life when the temptation is strong to leave the home nest, and seek their fortunes in the outer world.

THE BIG OWLS AND LITTLE OWLS AT HOME.

They see the old parent birds fly away with so much grace, that it seems to them an easy matter to lift their wings and glide away. Just what has been the day's disaster, we do not know, but it is evident that something unusual has occurred, and the parent owls are giving the little ones some looks, if not words of reproof. It may be that the boldest of them has scrambled over the edge of the rough nest, and trying to fly, has fallen headlong to the ground below. Perhaps this rapid descent has diminished the number, and there is, so-to-speak, a vacant chair in the owl-home to-night. Whatever may have been the trouble, it is quite certain that the father owl is laying down some parental law, which, if heeded, will make the life of the little ones more secure and happy. The mother, whose feathered breast may be heavy with a deep sorrow, is not silent—and all together, it is an eventful evening at the home of the brown owls in the deep dark woods.

The Fourth of July.

My young friend "H. B. D.," asks me to say something about the Fourth of July. His letter may be taken to ask: shall we celebrate the 4th?—and how? The first part of his question, I can answer by saying—yes, by all means; the other, the "how," is more difficult. Every boy feels that on the Fourth day of July, he must "do something," that somehow this day must be different from any other day, and many a boy thinks that on this day, of all others, he must make a noise. Many begin early in the year to lay by their money to be expended in fire-crackers, and other things that will make a noise on the 4th. I well recollect how on the night before the 4th we used to collect all our noise-making affairs; crackers, small cannon, and even the blacksmith's anvils, the holes in which could be used to fire off gun-powder, and make a noise. I also remember that, when after a noisy night on the 3rd of July, we were very tired on the 4th of the same month. Now, in full sympathy with every boy who wishes to "celebrate," and with a full recollection of some very tiresome celebrations, I would say a word to my young friends, and that is: whatever else you may do, *take it easy*. Celebrate by all means. Make a noise, the biggest noise of the whole year, if you can do no better—but can't you do better? Let us look at this 4th of July matter, and ask:

Why do We Celebrate the 4th of July

any more than any other day? I wonder how many of those boys who have been for nearly a year, saving up their money for the purpose of buying things that will bang and fizz on the 4th, ever thought of the "why and wherefore" of the matter. If they are told that making a noise is not the best way, they will ask, and they have a right to ask:

How Shall We Celebrate?

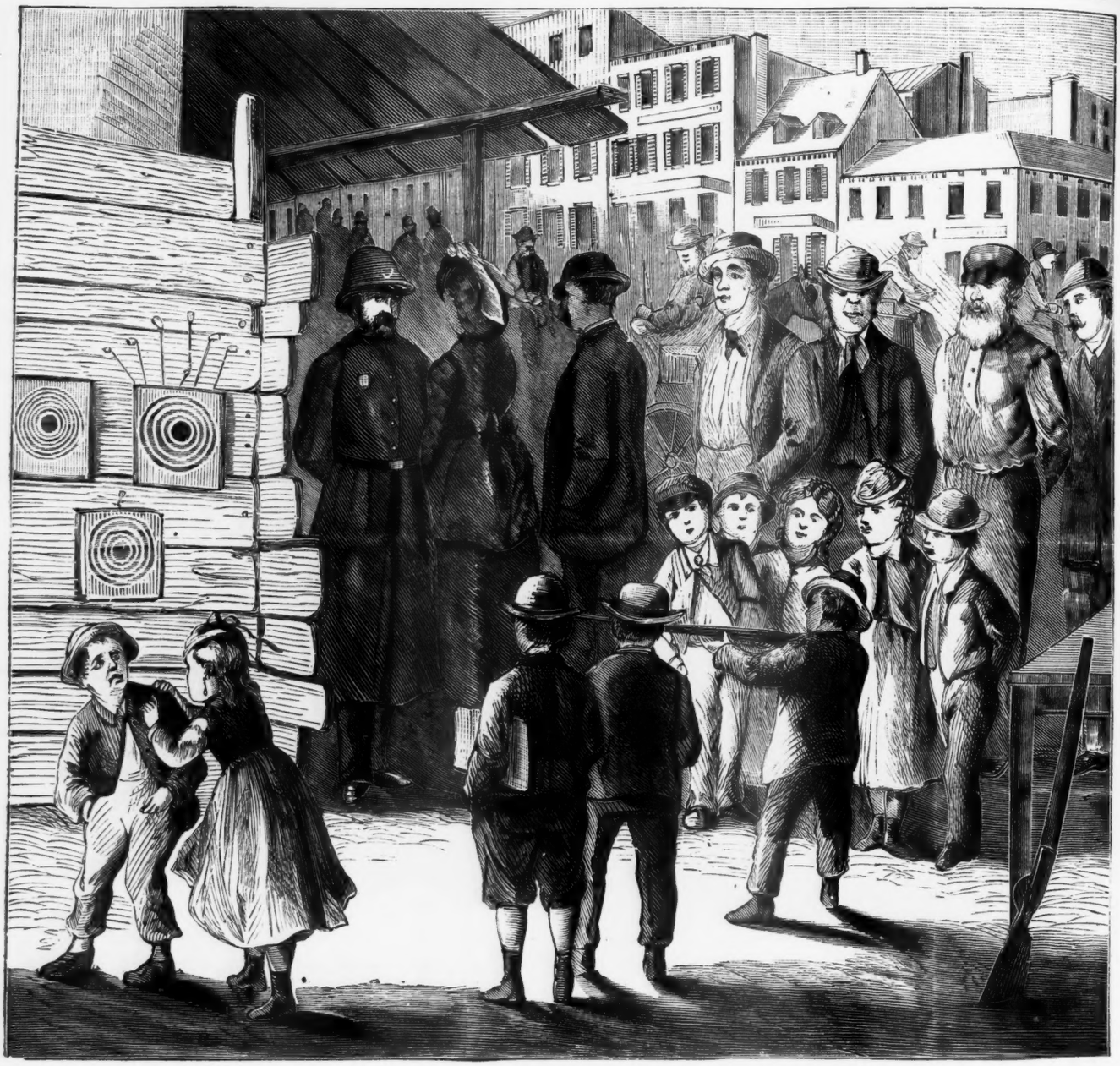
Now I wish to say that I believe in the 4th of July, and I would have every boy regard it as the day of days (save Christmas) in all the year, and I would have bang and fizz from end to end of this broad country, if we can do nothing better to mark the day, and when I say that I should not feel quite right if I had not made some kind of a "bang" on the 4th, I know that you will understand that I have not forgotten that I was once a boy. I only wish for not less of a celebration, but for a more marked and general one. I wonder how many of those boys who have been looking forward to the coming 4th, and have been saving up their money for things that make a noise, have ever considered the question propounded above, "Why do we celebrate?" Now would it not be the very best thing for sensible youngsters, as we take all ours to be, to devote the coming holiday to this question. Some of you may know that it is the anniversary of

"The Declaration of Independence,"

but what does that mean? Now I would suggest that on the coming 4th, make as much noise as you please, but give a part of the day to the important question—Why do we celebrate?

How Shall We Do This?

A good way will be to have a picnic, that will bring together all the youngsters in the neighborhood, in



A FOURTH OF JULY SCENE IN A LARGE CITY.—*Engraved for the American Agriculturist.*

some pleasant spot, and then let one boy read the "Declaration of Independence," that document which was the cause of all the celebrations. Make sure that whatever else you do, this "Declaration" is read and listened to; then sing the "Star Spangled Banner," "Red White and Blue," and other patriotic songs. This done, make as much noise, and be as lively as you please, but always, every year, on the 4th of July, so long as you live, read or hear read, that grand old document, the "Declaration of Independence." Now for the evening; many spend a sum for Roman Candles, Rockets, and other fireworks. I would suggest as

Better than Fireworks,

the paper Chinese lanterns. These, with the candles, cost but little, as compared with fireworks, and when hung on the piazza at night, and in the trees about the house, make a most pleasing illumination, which is enjoyable for hours, while fireworks make a fizz and a noise, and are over at once. Boys often make a great mistake in beginning their celebration too early—often at midnight on the 3rd, and when night comes on the 4th, they are quite too tired to enjoy anything. This more frequently happens in towns and cities, than in the country. The boys in a large city are to be pitied on the 4th of July, those at least who have but very little money, and are unable to go off on some of the many excursions provided on that day. There are in every city, large numbers of boys who do not seem to belong any where in particular, who black shoes, sell papers, carry parcels, and work at all sorts of odd jobs. These boys have the same idea of the 4th of July that other boys have, that is that they must "celebrate" it, and that means in doing something that they can not do on other days; they usually manage to save a few coppers in advance to be expended on that day. Now that the police are strict in preventing the firing of crackers, pistols, etc., on the streets, these youngsters are deprived of a large share of their fun. What is the 4th of July without fire-crackers, or something that will make a noise? They learn somehow, and very early, that the 4th of July must be celebrated, and that in their minds means to shoot off something. If they cannot shoot with a "bang," they do the next best thing, and shoot without the "bang," and it is a great harvest day for the big lazy fellows who keep the street target galleries. These chaps find some place in a side street, or one where a new building is going up, and put up their targets; at these the boys can shoot with spring guns, which throw a sort of dart with a steel point. The crowds that sometimes gather around these targets are not always of boys, for many others watch these rifle matches, as the engraving of such a street scene shows. The boy and girl at the left-hand interest us more than do any others in the picture. The little girl is evidently trying to persuade her brother not to spend his money so foolishly. She does not appear to have much success, as the boy looks like one who, on this day at least, is bound to declare his "Independence." Hot pavements, crowded streets, shooting a mock gun at a target. It is the best the little fellows can do—but they are in their way celebrating this memorable day. You who can show your patriotism in the open country, and in pleasanter methods, should not look unkindly on these little fellows, but be glad that among boys every where, this day is remembered; let us hope that they may learn why it is remembered. It will be a bad day for this country when its boys do not look forward with pleasure to the coming of the 4th of July. THE DOCTOR.

To Parents.—We cannot say more to parents than this—That if they will buy for their children shoes with the A.S.T.Co. black tip on them they will reduce their shoe bills one-half, while at the same time they add to the beauty of the shoe, even the finest.

DON'T BUY ensilage or feed cutters till you see The New York Plow Co.'s "Cycle" Cutter, 55 Beekman St. Proceedings of Ensilage Congress, 30 cts. Far-South Seed Corn, $2 bu.

THE ACCURATE WATCH. Stem Winder. Stem Setter. Reliable. Warranted. Thousands sold and no complaints. Circulars free. Price $10, delivered free at your nearest express office on receipt of price. *If our watch was not as represented, the "Agriculturist" would not publish this advertisement.* CUMMINGS & CO., 38 Dey Street, New York.

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6 Shirts for $6.

I have extraordinary facilities for making Fine Shirts at a remarkably low figure, which will prove perfect in fit, and wear as well, if not better, than many for which higher prices are paid. The bodies are made of **Wamsutta Muslin**, and with **reinforced fronts.** The bosoms are made of fine Irish linen, three-ply, and shield-shaped. The trimmings are all fine linen. The yokes and sleeves are double-stitched. Sleeves and backs have facings. **All seams** are **double-stitched** or felled.

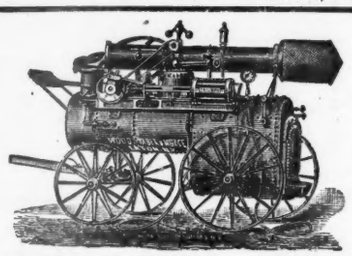
A Better Shirt Cannot be Made at Any Price.

A sample Shirt will be sent by mail on receipt of One Dollar and 15 cents to pay postage. State size of collar worn.

Samples of material and rules for self-measurement will be sent free. Address,

C. R. QUINBY,

(Custom Dept.) Pleasantville, N. Y.



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Of the HIGHEST STANDARD, in every respect, of materials and workmanship. Were pioneers in the manufacture of

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And with determined policy to build only the BEST MACHINERY from the BEST MATERIALS, and in the BEST MANNER OF CONSTRUCTION, and with continued improvements, have attained the HIGHEST STANDARD in excellence of workmanship, simplicity of design and capacity of power. For a quarter of a century have maintained their manufacture, the

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For Washing Windows, Carriages, etc., Protects Buildings from Fire and Trees, Vines, etc., from Insects, Potato Bugs, and Canker Worms, Valuable to Horse Owners. Can be used in any Position. Send for large Illustrated Circular.

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Providence, R. I.

"VICTOR" One-Horse Grain Drills.

(3 and 5-Hoed), for sowing *Wheat* between *Standing Corn*, or *Wheat, Rye, Barley, Oats, Rice*, etc., in fallow ground. Can be adjusted also to drill *Corn* for *ensilage* purposes. (Send for circulars).

Manufactured by

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H.W. JOHNS' ASBESTOS Liquid Paints

are strictly pure linseed oil paints of a higher grade than have ever before been manufactured for structural purposes. They are sold by U. S. Standard gallon measure, and although they command a higher price than any other paints, a saving of 25 to 33 per cent of customary outlay can be effected by their use, in consequence of their wonderful covering properties and superior durability.

The finest and most extensive structures in this country are painted with these paints, among others the U. S. Capitol at Washington, the Metropolitan Railroad of New York, the Oriental Hotel, Manhattan Beach, as well as thousands of the better classes of dwellings everywhere.

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We also manufacture in seven colors

Roof, Railroad and Sea-side Paints,

also adapted for Barns, Fences, and rough wood-work. Samples will be sent free by mail.

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H. W. JOHNS M'F'G CO.,

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With a **"Challenge"** Lawn Mower **SHARPENER.** Simple, cheap, durable, and adjustable to any machine made.

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TO KEEP IT SWEET **CIDER** or prevent *Secondary* FERMENTATION.

USE

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It does not impair the taste or flavor, is thoroughly reliable and *absolutely harmless to the human system.*

SEND 35 cts. for a sample, forwarded free; sufficient for 40 gallons. One pound, sufficient for 8 Bbls., $1.50, receiver to pay charges, or $1.80 by mail, prepaid. Price lower in larger quantities.

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A NEW DISCOVERY.

☞ For several years we have furnished the Dairymen of America with an excellent artificial color for butter; so meritorious that it met with great success everywhere receiving the highest and only prizes at both International Dairy Fairs.

☞ But by patient and scientific chemical research we have improved in several points, and now offer this new color *as the best in the world.*

It Will Not Color the Buttermilk. It Will Not Turn Rancid. It is the Strongest, Brightest and Cheapest Color Made.

☞ And, while prepared in oil, is so compounded that it is impossible for it to become rancid.

☞ **BEWARE** of all imitations, and of all other oil colors, for they are liable to become rancid and spoil the butter.

☞ If you cannot get the "improved" write us to know where and how to get it without extra expense. (16)

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A sure exterminator of the Potato-Beetle.

It is an impalpable powder, combining fertilizing properties with poison destructive to the Potato-Bugs in the various stages of growth; at the same time the ill effects of **Paris Green,** or danger from having it around in quantities, are lessened. Cattle or swine are not likely to touch it. Many large potato-growers are now using it exclusively, and find it cheaper and more convenient to apply than any other insecticide in market, in addition to avoiding the trouble and danger of mixing poisonous substances.

Put up in barrels of 200 lbs. in bulk, $7.50 per bbl. Packages of 5 lbs., 50 cts.; 10 lbs., 90 cts.; 15 lbs., 75 cts. Cannot be sent by mail. Descriptive circulars mailed to applicants.

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Fine Pot-grown Plants, ready after July 25th. If planted early, will produce a good crop next year. New Descriptive Priced Catalogue, containing full cultural directions, mailed *free.* Address,

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See my circular. Ready soon. Send for it **NOW.**

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BEST and newest varieties grown in pots for Summer and Fall planting. **Bidwell, Manchester, Seneca Queen, Primo, Jersey Queen, Finch's Prolific,** and other choice sorts. Plants grown to order at lowest rates. Send a list of varieties wanted, and get priced, stating number of each kind wanted. Address

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True American Purple Top, White Flat Dutch, White and Yellow Ruta Baga, and all approved varieties, at 50 cts. lb. 16 cts. added, if sent by mail. (Special prices for large quantities.)

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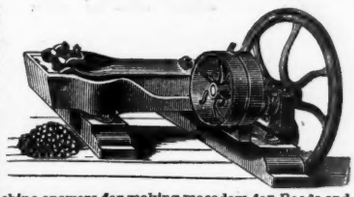
Which uses **GROUND LIMESTONE** in making the Soil. Every Farmer can prepare his own **Fertilizer** with an ordinary Horse-power by using

FOSTER'S COMBINED CRUSHER AND PULVERIZER.



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STRONG. DURABLE. Best in the WORLD.

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NEVER FREEZES in WINTER.

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VICTORIOUS AT

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25 Years in Use.

GUARANTEED SUPERIOR

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17 Sizes—1 Man to 45 Horse Power.

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The Best in the World.

It is perfectly self-regulating, and presents no unnecessary surface to the wind. Pronounced by millwrights and mechanics to be superior to all other mills made. Do not buy until you have investigated the Champion. All information regarding the mill free.

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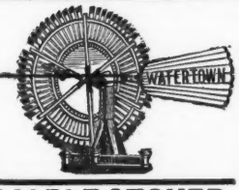

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Largest track (7 ft.) wheels No Rods, and Chilled Bearings **Guaranteed** to produce more power with **less elevation** than any other.

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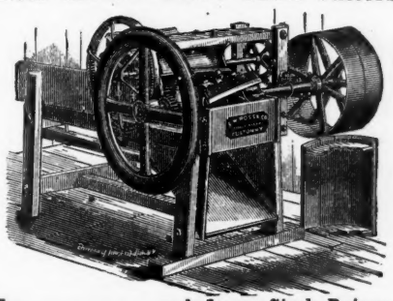

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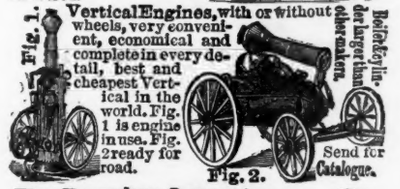

Fig. 1.

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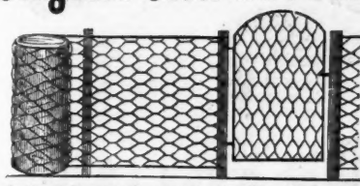

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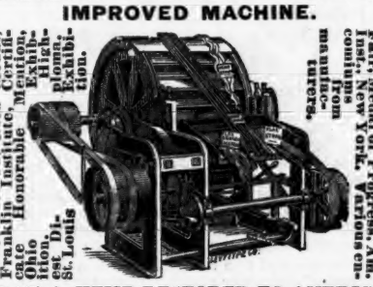

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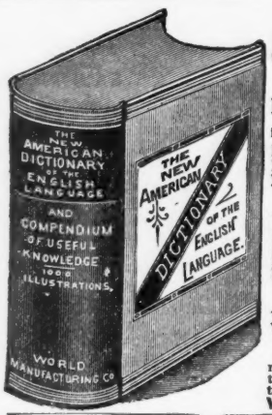
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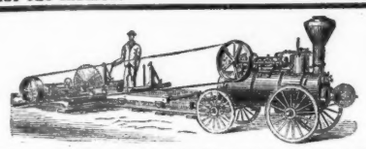

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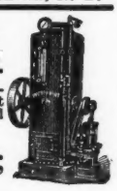

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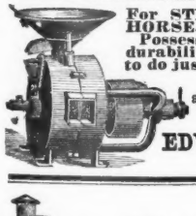

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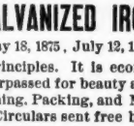

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It is well to always run one's eye over the advertising pages of this Journal, and see what is offered, by whom, etc., as a source of information. There are usually *new* and valuable implements, and other things worthy of attention, while no vile or quack medical nostrums are present to disgust the old, or deceive or allure the young. No man is admitted if there is not good reason for believing that he has both the *ability* and *intention* to do what his advertisement promises. The Editors have full veto power over every advertisement offered, and they exclude the advertisements of every party whom they would not themselves patronize, if wanting the articles offered. ☞When corresponding with any of these advertisers, sending for their circulars, catalogues, etc., it is well to inform them that you are a reader of this Journal. They will know what *you* expect (and what *we* expect) of them in the way of prompt and fair treatment.

Lime with Muck.—Newly-slaked lime is an excellent thing for composting with muck. The vegetable matter of the muck is decomposed by the caustic action of the lime, and made soluble, and thereby available as plant-food. There has been a good deal said of late in favor of ground limestone as a fertilizer. On most soils it is of very little use, and in its good effects in the compost heap is not to be compared with the fresh-burned lime. It may be said here that it is a good time to get out a supply of muck during the summer months, when the beds are dry.

Pond Water.—Every farm animal should be provided with an abundance of pure water. Small ponds, sloughs and spring holes are not fit to furnish water to any kind of domestic animal. If a slough must exist in a pasture, it should be fenced in, and thus remove the temptation for swine and cattle to drink from it. More animals die from diseases induced by filthy water than is generally supposed. A running spring, with clean surroundings, is a most valuable feature upon a farm. Other sources of water are a never-failing well, then come the well-kept cistern, the running brook, the lake, and the large pond.

Camellia Cuttings in Water.—Placing the cuttings in bottles of water has long been the popular method of propagating the Oleander. This method answers well for some other hard-wooded plants. A writer in a recent number of the "Revue Horticole" gives an account of his success with the Camellia, treated in the same manner. He takes cuttings of the growth of the previous season with three or four buds, places them in bottles of rain-water on a tan-bed, and covers with a hand-glass.

Artichokes.—"R. C. T."—We do not as a rule answer those who do not care to give their names—you give neither name nor State—But we vary from our rule, as others will be interested when we say that we suppose that the Artichoke about which you inquire, is a variety of the Jerusalem Artichoke (*Helianthus tuberosus.*) Several varieties are in cultivation, and that called the "Brazilian," is short and round, and much to be preferred to the old kind, with long and slender tubers. There is no danger that "the plant may become a pest," so long as you have any pigs. As to where they can be had—it belongs to those who have them for sale to say.

Portulaca—Purslane—Pussley.

A correspondent asks us to say something about "Pussley," but as he does not indicate what he would have us say about it, we suppose he has reference to it as a weed. The plant is known over a large portion of the country as "Pussley," which is evidently an abbreviation or corruption of the English name, "Purslane." The plant is known in Europe in cultivation and not as with us, as a weed. The derivation of the English name is by no means clear, some regarding the origin to be from *porcellana*, a sea-shell, the same from which the fine earthen ware gets its name; while others think the name derived from *porcella*, a diminutive of *porcus*, a pig, probably in allusion to its greediness in feeding. The botanical name *Portulaca* is ancient and its derivation is unknown. Our common Purslane (*P. oleracea*) is probably a native of the warmer parts of both hemispheres. Over a large part of this country it has become thoroughly established as a weed, and we have seen it growing on the far western plains as if it were a native. It makes but little show early in the season, but in the hot days of July and August it grows with astonishing rapidity. An inconspicuous seedling will, if left undisturbed, in a few days form a spreading mat a foot or more across. It is a gross feeder and of course a weed to be exterminated. It is very tenacious of life, and if the root is merely cut off, the plants will make new ones; hence in hoeing in the garden or the corn-field, the plants should be always turned over. While its presence shows slovenly culture it is not a very obstinate weed. When it is cut up by the hoe, only a part of the work is done; it should be raked up and fed to the pigs, who are very fond of it, else the plant, apparently dead, will have sufficient vitality to enable it to ripen its seeds. The plant has given rise to two proverbial sayings: "As mean as Pussley," and, as applied to a slovenly gardener: "He lets the Pussley get ahead of him." While the plant in this country is only regarded as a weed, in Europe it has a place among garden vegetables, the seeds being offered in the catalogues in several varieties, differing in the color of the stems, and the works on gardening give directions as to its culture. We do not need to cultivate it in this country, but in neglecting it altogether we let a very excellent pot-herb go to waste. The succulent and tender stems if cooked and dressed in the same manner as spinach, form a most excellent substitute for that vegetable, and one that is always to be had in the hottest weather. Those who are fond of greens should try "Pussley."

The Turnip Crop.

No crop makes better returns for labor bestowed than turnips. The seed may be sowed any time from the first of June throughout August, in many localities below the isothermal of say the north line of Connecticut. It may be sowed broadcast, in drills or rows, or as a "cattle crop," among corn; or turnips may be used to seed to grass with, sowing both the turnip and grass seed about August 1st. For turnips alone the preparation of the ground is simple. It needs good plowing and harrowing if in fair heart; but a dressing of 400 lbs. of bone dust or 250 lbs. superphosphate to the acre will almost insure a good crop. We rarely have such dry weather that turnips will not start in July, and soon as they make leaf heavy dews seem to be enough to keep them growing, but last year was an exception in this part of the country. In many fields turnip seed on dry ground did not germinate, or at least did not make any show above ground.

In sowing turnips broadcast the greatest care must be taken to have them thin enough. A pound of seed to the acre is all that should be sowed, and this should be divided, the whole piece being sowed twice at right angles. In Europe the seedsmen use old seed baked, or baked rape seed, to mix with turnip seed as an adulteration. If we could buy here such old baked seed so as to mix it ourselves—say five pounds of baked with one of live seed, and thus be able to make a fair cast, instead of throwing little pinches of seed as we now do, it would save a good deal of trouble. Sowed in drills, turnips must be thinned. Much rank manure gives a strong bad flavor. Turnips ought never to have the first chance at a dressing of yard or stable manure, but to come in as a second crop. As to varieties, there are two widely different classes, and intermediate varieties without number which it is hard to classify. Swedish or Russian turnips, generally known as "Ruta-bagas" or "Swedes," are a very distinct, hard-fleshed, glossy-leaved kind, occurring in many varieties, that need better soil, earlier sowing and better culture than the soft-fleshed or English turnip, which is rough-leaved, grows most rapidly, is a voracious feeder, doing well and making a bulky watery crop where Swedes would do very little, and yet it is question whether the small crop of Swedes would not contain nearly as much nutriment as the soft turnips. Between these two extremes of hard-fleshed and soft-fleshed kinds are many varieties partaking in a measure of the hard-fleshed character of the Swedes, but generally regarded and treated as belonging to the common or English species. Such are the "Yellow-globe," "Yellow-stone," "Dutch," etc. As a rule it is best to sow Swedes as early as the first of July, the "Globe" and "Stone" turnips as early as the 25th, and the soft turnips, "Strap-leafed flat," "Cow-horn," etc., by the 10th of August. The last named is the best to seed down to grass with, and on good soil not clayey, turnips and clover seed may be mixed together, using about 15 pounds of clover seed because some will winter-kill.

About Buying Milk.

It is delightful to have milk from your own cow, that you know is pure and good, that raises cream and has a fine flavor! If denied this privilege, the next best thing is to get milk from some well-known honest neighbor. If good and carefully handled, it should remain sweet all day in summer, if kept in a cool place, and longer in winter, or in cool weather. But the utensils in which the milk is received and stands in must be scrupulously clean, not neglecting the seams in the tin ware, in the pail cover, and the joinings of the handle, so that not one particle of milk is left to dry and become sour. After washing pail and cover thoroughly, scald them with boiling water, and wipe with a clean cloth. Then set them in bright sunshine or invert over the stove where they will heat without injury. Sometimes, when it is not convenient to use scalding water at every washing, I have used borax quite freely, or some strong alkali, rinsing very thoroughly, and drying them, after wiping, by sunshine and fire. Then if purchased milk sours, I know whose fault it is. The pail, however clean, should not be set away empty with the cover put on tight. If the milk is kept in the pail (not a good practice) it should not be shut closely. Leave it partly open until the milk has cooled, and never leave it standing in the midst of bad odors. If in spite of your care, the milk sours too soon, those who supply it must be in fault. The milk-pail or strainer may be unclean, or turnips or ruta-bagas may have been fed injudiciously. If the milk does not sour suspiciously soon, you may decide that the flavor is from turnips or wild garlic, or other plants in the grass or hay. It is not difficult to know if new milk is adulterated with skimmed milk by a little experimenting. It is not of the least use to expostulate with a person who sells you skimmed milk. If guilty she will be sure to be angry, and if dishonest enough to take your cream off, do you suppose she will be honest enough to confess it? All you can do is to change your source of supply. The milk peddler who comes to your door with his large cans of milk, is much more likely to adulterate his milk with water than with skimmed milk. His long jaunt in the sunshine, and shaking cans by the jar of the wagon tends to sour milk very soon. If milk does not keep sweet from one supply to the next, scald a part of it, not actually boiling it, and the scalded milk will do for most purposes.

Flies and Mosquitoes.

Much may be done to avoid the annoyance caused by these insect pests, by a little care in keeping them out of the house. In localities where they are especially abundant, it will pay to fit the windows and outside doors with a screen of wire cloth. Where this screen can not be afforded, there mosquito net may be substituted, but the wire screens, if properly cared for will last for years. Cheap frames, of the size to fit in the place of the upper or lower sash, can be readily made and covered with mosquito net, and should be provided for all the windows, at least for those of the rooms in general use. The doors, especially the kitchen door, should have a similar screen, and should be furnished with a spring, to make sure of prompt closing. If the sleeping rooms are aired and put in order very early in the morning, and then closed while the air is still cool, and not opened until the "cool of the evening," but few insects will find an entrance. In spite of all precautions, a few flies may find their way into the living rooms. These may be killed by the use of a folded newspaper, or all the windows but one being darkened, they will go towards the light. and may be easily driven out. Whatever the annoyance of flies in the house, *do not use fly-poison*. This is sold under the deceptive name of "Cobalt," to be mixed with sweetened water, and set about the rooms to attract the flies. It kills the flies—but it kills children also. We have known of two distressing deaths from this cause, and it should be generally known, that the powder sold under that name is not Cobalt at all, but is really *Metallic Arsenic*, and a most deadly poison. There should be a severe penalty for selling this most destructive agent under the false name of "Cobalt." *Do not use it*, either as "Cobalt," or in the shape of "Fly Paper." A dark paper is sold, labelled "Fly Paper," with directions to put a piece in a plate, and keep it moist. This paper is impregnated with the same deadly arsenic. In Europe a till more dangerous fly paper is sold, which has been soaked in the deadly Cyanide of Potassium. Avoid them *all*. The sticky fly paper, which the makers call "Catch 'em Alive Oh!" is any common paper upon which is spread a thick varnish made by melting together rosin and linseed-oil; it is not dangerous, and acts only mechanically, by cruelly holding the insects fast, until they die. Quassia is stated to be poisonous to flies; we have not had occasion to try it, but have no doubt of its efficacy. A strong tea made of this, sweetened with molasses, may be exposed in plates without fear of danger. It is said that strong green tea, well sweetened, acts as a poison to flies. With regard to the destruction of the mosquitos that may enter the house, we should be disposed to make a trial of the Persian Insect Powder, *Pyrethrum*. A small quantity of this burned in the closed bed room, has been found to destroy every mosquito. In France (as stated in last month), pastilles made of this powder, are used for this purpose. The same end may be accomplished by sprinkling some of the powder upon a few live coals, on a shovel or in any safe vessel. The powder is perfectly harmless to all but insect life. With both flies and mosquitoes, much may be done in the way of prevention. Flies breed in the manure about the stables and pig-pen, and proper attention to cleanliness in the out-buildings will diminish their numbers. No scattered manure should be left about; if all is placed on a compact manure heap, the heat of fermentation will kill the larvæ. Wherever there is stagnant water, there is a breeding place for mosquitoes. It should be generally known, that the "wriggles" so common in rain-water, are the young of the mosquito. It is often the case that rain-water hogsheads or cisterns, are for convenience placed near the kitchen door, to receive the water collected from the roof. These are a constant source of supply of mosquitoes all the season—regular "hatcheries" as the fish breeders say. All such water receptacles should have tight covers, as then the parent mosquito will not enter to deposit her eggs, nor can the wriggles flourish in darkness.

Buying Seed Wheat.—A correspondent in one of the richest wheat-growing sections in Pennsylvania writes us about a certain seed wheat which farmers in his section have bought at the rate of $5 a bushel, to the amount of several thousand dollars. Observe that the inquiry comes after the farmers have bought, and after each one has signed an agreement to pay the above price on delivery. As to the merits of the wheat we have nothing to say, as it is of a variety with which we are not acquainted and is not known to our dealers in seed grain. We are informed that "the seller is a good talker" and the samples are "a very pretty wheat," both of which statements are very probable. But how can the farmers in "a rich wheat-growing community" buy seed wheat, upon the quality of which their prosperity depends, of a heretofore unknown kind, and of a perfect stranger! The man must indeed be "a good talker" to talk a community of wheat-growers into doing this. As the seed can not be delivered before it is harvested, there would have been abundant time to inquire about it before signing the agreements to take it. The wheat may be all right, and worth the large price asked for it, but they have no proof that such is the fact.

The Goldsmith Beetle.—A young lady at Nepang, Conn., writes us that she has read what we have said about the June-bugs, and would like to know "about a beetle of similar shape, but larger, with gold and silvery markings." This beetle, popularly known as "Gold-bug" and "Goldsmith Beetle" (*Cotalpa lanigera*), is so common in New England and elsewhere that it is strange that so little is known of its history. Their gilded appearance at once distinguishes them from all related beetles. They have remarkably sharp claws, by means of which they cling to and hide themselves under the leaves of trees during the middle of the day; at twilight they are very active and feed upon various fruit and forest trees. Beyond the fact that the female lays her eggs in the ground, that the larva lives there and has been known to injure the roots of the Strawberry, little is recorded in the books. It would be a very useful work for some of our young naturalists to watch this insect and endeavor to complete its history.

A Paper-File, or Binder.—Mr. J. Beattie, Caldwell Co., Kansas, writes us: "There are many who wish to preserve certain papers or magazines (like the *Agriculturist*, for instance), but who, like myself, can ill afford the $1.00 or $1.50 charged by the book-binders. A short article on book-binding, such as could be done at home, would be very acceptable."—In the *American Agriculturist* for March, 1879, we gave an illustration of a simple home-made binder for magazines. It consists of four pieces of hard-wood, with two holes in each. These are placed in pairs, with the papers between them, and held firmly together by cords which pass through the papers and the holes in the wooden pieces. If sheets of pasteboard of the size of the magazine are provided as covers, they will aid materially in keeping the numbers in a neat condition.

Sale of Mr. Simpson's Jerseys.—This was the second annual sale of selections from the Simpson herd, and consisted of young stock bulls and heifers of his own breeding, with a number of exceedingly good imported cows, chiefly in calf to "Mercury," the famous and only living son of "Alphea" and "Jupiter," at the head of Mr. Simpson's herd. The number of animals offered was 37—12 bulls and 25 cows and heifers of all ages. The cows averaged $615.75 in price, and the bulls nearly $444. The highest price for a cow was $2,300, paid by Paul Sgobel, Esq., of Hyde Park, N. Y., for "Alphea Queen" (13,732), and the highest price for a bull was $1,650, paid for "Zahaas Mercury" (6,983), by H. S. Muldro, Esq., of Washington, D. C. This sale was held at the Simpson Homestead, within the limits of the City of New York, in what is known as "the annexed district," which lies north of Harlem River, a beautiful spot, within easy reach by elevated and surface railroads. The day was superb. The cattle, in neat temporary stalls, in two rows, under a great tent, could be inspected and handled conveniently. A bountiful collation satisfied appetites rendered keen by exercise and the bracing air. Then at noon, or shortly after, the famous bulls "Mercury" and "Rex" were exhibited on the lawn, and with them a young bull named "Fame," certainly a most beautiful animal, and famous for his broad and high "escutcheon," of the first-class Flanderin type. The sale drew together many earnest breeders of Jerseys, though some were conspicuously absent. Prices averaged rather high, but it was a very good place to buy, for excellent things, of both sexes, with famous pedigrees, sold within the reach of any breeder. Neither in the catalogue nor at the sale was there any "buncombe," or effort to work up prices. As at the Kellogg sales all sales were absolute, there was no by-bidding or upset prices, and everybody seemed gratified and happy. It was like a great family party, and we shall not soon forget the scene on the lawn in the fresh green and bloom of May, gay with tents and carriages, ladies and children, and the two or three hundred guests, bidders and buyers, seated under a second spacious tent, enjoying the jokes and bulls of the jolly auctioneer.

Rust on Wheat.—The yellow or orange-colored dust that forms on the leaves and stems of wheat shortly before reaping time, is caused by a minute fungus. The fungus-plant attacks the wheat some weeks before it makes its appearance, and fills the interior substance of the leaves and stems with its fine threads. These threads act as roots, by means of which the fungus or rust-plant obtains its nourishment from the substance of the growing wheat-plant. There is no remedy for the rust after it has once appeared upon the surface of the wheat. The most effective preventive is blue vitriol or blue-stone (sulphate of copper), two or three ounces of this salt to a bushel of wheat. The wheat is soaked in the brine for a short time before sowing. There has been much energy expended in the endeavor to find some variety of wheat that is rust-proof. Prof. Brewer, who has charge of the grain statistics in the late census, finds many districts where a variety of wheat has sprung up, that for a year or so is almost rust-proof, but afterwards it becomes infested the same as other sorts. As a precaution, it is well to burn the stubble, thus destroying many spores that would otherwise germinate and continue the pest.

The Death of James Vick occurred at Rochester in May last. Mr. Vick was of English birth, but he soon thoroughly identified himself with horticulture in this country. He was one of the first to avail himself of the new postal laws regarding the transmission of seeds, and his business by mail was remarkably large. He was at times editorially connected with the "Rural New Yorker" and the "Horticulturist," and in the later years of his life published a horticultural monthly of his own. Those who have had the good fortune to be acquainted with Mr. Vick, do not need to be told of his genial qualities or of his devotion to horticulture in all its departments. In Rochester, one of the chief centers of horticulture in this country, his active presence will be greatly missed, and all over the country a vast number of correspondents, who never saw him, will feel his loss as a personal bereavement.

Ants in the Lawn.—Before us are three letters, the purport of which may be summed up: "Ants have established themselves in our lawn; how can we get rid of them?"—Our Ant experience is not very encouraging; the writer once lived in Texas, where Ants can not be ignored. In the front yard of our house were two ant-hills, one on each side of the path leading from the front door to the gate. We directed the cook to always have a supply of boiling water; this was applied several times a day, and the Ants seemed to like it. Other insecticides, including turpentine and chloroform, were tried, but when we came away the colonies seemed to be in a flourishing condition. Since then the Persian Insect Powder (Pyrethrum), has come into use, and we have great hopes of this as an agent in destroying Ants in the lawn. An infusion of it has been found useful.

Hair on the Upper Lip.—A correspondent in a Western State puts his case essentially as follows: "I have a lady friend who has spent several years of genuine, smothered-up misery, because she imagines there is on her upper lip just a trifle too much 'down,'—too good a showing for a future moustache. She came to me in an agony of despair, and wanted me to write to those who advertise preparations to remove superfluous hair. I told her I believed them all to be dangerous, but promised to write you, and ask if there is any *safe* and *effective* remedy for too much "down" on a girl's upper lip."—We have had other inquiries of similar purport, and would say, so far as we are aware, all *depilatories*, as hair-removing preparations are called, are either preparations of *arsenic*, or strong alkaline sulphides. The arsenical compounds are too dangerous to be used under any circumstances; the Sulphide of Barium, and other sulphides, are very corrosive, and are apt to cause great pain, though they are not so dangerous as those containing arsenic. While these will destroy the hair, we can not commend them, as they are not at all satisfactory. With dark hair, the small portion, or "root," that still remains in the skin, shows very distinctly, presenting a much more unpleasant appearance than the hair itself, and conspicuously advertises that an attempt has been made to remove it. It is a misfortune to a young lady, and often the source of much mortification to have such a growth of hair on the face; but if one has solid acquirements, sweetness of character, and self-forgetfulness, she need not fear that any one whose esteem is of value, will think any the less of her for that which she can not prevent. It is better to accept what nature has given, than to attempt to remove it by application which may be dangerous, and are rarely successful.—We may add, that in two instances, where very worthy ladies of our acquaintance were troubled with a few straggling hairs upon the face, perhaps 75 to 100 of them in all, they used a pair of tweezers and drew out the separate hairs by the roots with a quick jerk, taking only a few at a time. Cologne-water applied and a dusting of common face powder or corn starch soon stopped the slight pain produced by this operation.

Write When You Send.—We have a dozen or more specimens of plants, stones, etc., that have been sent to be named, and no doubt the senders think that they are badly treated because they get no response. Yet, out of this whole lot, there is not one to the ownership of which we have the slightest clue. Whenever our friends send specimens, it will be safer, even if it does cost them a trifle more, to inclose their letter in the parcel, and send the whole by letter postage. When this is done, we have the whole story before us, and can reply by mail or in the paper, as seems best.

Late Fodder-Corn.—Corn sowed early in July in good soil, in drills, with some compost of yard manure, or fertilizer like superphosphate, a fish or flesh manure, in the drill, will be in exactly the best condition for cutting and curing for winter fodder by the time of early frosts—say September 15th. The system which it is best to follow, depends upon the kind of manure at hand. If that be a well-rotted, fine compost of yard manure, or of other nitrogenous substances not likely to burn the seed by fermenting, make furrows about four or five inches deep, thirty inches apart, and spread the manure in them liberally. Scatter in the seed by hand or by seed-drill, at the rate of 24 to 30 kernels to the running foot. When we must depend upon some commercial fertilizer, we have our choice between guano, a nitrogenized superphosphate, fish manure, "tankings," or something of the kind. Such are well called "hand manures" sometimes, and when spread in the drills with rather a liberal hand, using 250 to 600 lbs. to the acre, according to the strength of the fertilizer, it should be mixed with the soil in some convenient way before sowing the corn. Cover seed lightly with a plow. A convenient implement for mixing a fertilizer in the drill is made in a few minutes where red-cedar trees abound, by taking a stem about eight feet long, having branches on all sides, and trimming them off, leaving strong spurs about six inches long. This, dragged by a horse, butt-end foremost, and guided by a rope or chain attached to the small end, will completely mix the fertilizer with the soil in the drill. The guide-rope in the hand of the driver is important, for the butt may strike a root or stone, which might cause the stick to bound or turn a somersault, and hit the horse; with the guide-rope the stick may be lifted over obstructions, turned at the end of drills, and guided conveniently.

Plants for a Grave.—"E. H. C." You do not state whether you have in view a burial lot, or merely the grave itself. If the grave only, we would advise setting several small plants of the European Ivy, and as they grow, train them to form a solid mat of dark green verdure. Ivy treated in this manner will endure the winter in localities where it would be killed if it grew upon buildings. If flowers are desired, they should be of kinds that will take care of themselves, and be placed near, rather than on, the grave. Next autumn you can plant Crocus and Snow-drop bulbs. The perennial Candytufts, the White Moss Pink (*Phlox subulata*, var.), *Astilbe Japonica*, *Deutzia Gracilis*, the White Bird's-foot Violet (*Viola pedata, alba*), and the white variety of *Anemone Japonica*, are among the desirable plants for decorating the lot, that may be set in the spring.

Sending Plants for Name.—Our friends often attempt to have plants from a distance reach us in a fresh condition. When they wrap up a fresh plant, or a part of one, it usually reaches us in a partly decayed state, and often in an entirely useless condition. We would hint to those who send plants to be named, that we can identify them much more readily if they are first properly dried, than we can in this half-decayed state. Please put a bit of the plant, showing its lower leaves, if these differ from the upper, a flower cluster, and the fruit (or seed pods), between folds of newspaper, or between the leaves of an otherwise useless book, placing them under moderate pressure until dry. Such specimens can then reach us in a condition in which they may be readily examined.

Kansas Flowers.—"W. S. R.," Washington, Kans. Your "Earliest Spring Flower," is the Carolina Anemone (*Anemone Caroliniana*), abundant all through the Western States, and very variable in color, from deep purple to nearly white, as your specimens show. Thank you for sending such well dried specimens.

All Premiums, special or otherwise, were to close before July 4th, but the demands for the following are so very large and pressing, that the Publishers have decided to continue the Offer a month longer, or up to August 4th.

SPECIAL PREMIUMS For JULY.

Any person sending a Subscription to the American Agriculturist for one year, at the regular rate of $1.50 *a year (or two Subscriptions for half a year, at the same rate), will be presented with* **any one** *of the following, delivered by mail, post-paid, to any part of the U. S. or Territories (the Pot-grown Plants excepted):*

No. 1.—Any one of the One Hundred Good Books described on pages 124 and 125 of the March number of the *American Agriculturist.* There are many excellent books in that list, well worth $1.25 to $1.50 each, and only sold for these prices.

OR,

No. 2.—The American Popular Dictionary, described on page 124 of March *American Agriculturist.*

OR,

No. 3.—24 Bidwell Strawberry Plants, post-paid; OR, 15 Pot-grown Bidwell Strawberry Plants, by express, unpaid, as described in March *American Agriculturist*, **page 124.** This is one of the best, probably the best, of the NEW Strawberries before the public—on account of its many good qualities, both for a market and home fruit, and its adaptation to cultivation throughout the country generally.

OR,

No. 4. — The "American Agriculturist MICROSCOPE," described on page 173 of April *American Agriculturist.* A very convenient and useful instrument.

OR,

No. 5.—Yankee Farming. The Tim Bunker Papers—(Price $1.50).—Tens of Thousands of our readers, who have read the letters of Timothy Bunker, Esq., that have appeared from time to time in the *American Agriculturist* **during Thirty Years past, will be interested and profited by the perusal of this work.** ☞ It is a quaint, most interesting book, giving the experiences, observations, etc., of "Timothy Bunker, Esq.," of Hookertown, Conn. It is full of good, practical suggestions on farming, etc., told in a way that they will "stick." No other book on American farming contains so much entertainment with instruction. With illustrations by Hoppin. Finely printed on good paper and well bound in cloth, with gilt title and side stamp.

The Plum Curculio.—"B. D.," Passaic Co., N. J. *Don't*—that is, don't soak corn-cobs in kerosene and hang them in the trees with a view to keep the Curculio from your plums. We have seen it tried, and know it will not work. The Curculio will laugh at this, and all other bad smelling things to drive it away from your plum and peach trees. Nothing short of catching and killing will answer. It is called "Plum Curculio," but it is a great pest in the peach orchard, attacking the fruit soon after it has set. Jarring the trees, catching the insects on a cloth spread below, and then killing the insects thus caught, is the only method. All others have proved useless.

Tuberous Rooted Grapes.—In a notice of these new vines, p. 251, last month, we said that they "were on the way," and should have said "on the way to France." Several have taken this to mean on the way to this country, and we have had a number of inquiries as to the price, etc. We would say, that the tubers have not been received in France at the last accounts, and they are not likely to come this year. The French Horticultural Journals contain many complaints that the seeds do not germinate. So far as we are informed, these new vines are, even in France, things of the future.

FEARLESS.

VICTORIES UNEQUALED.

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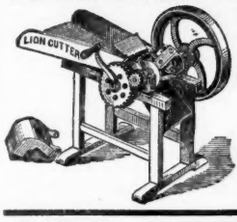

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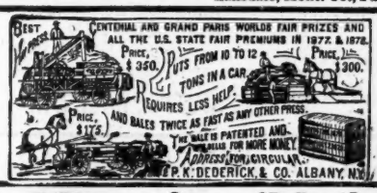
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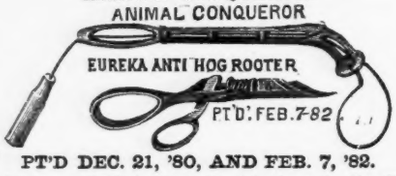

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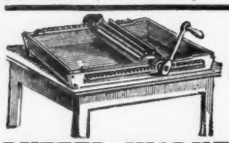
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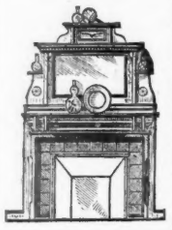
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